PLANNING COMMISSION AGENDA
City Commission Chambers - City Hall
625 Center Street, Oregon City, Oregon 97045
August 30, 2010 at 7:00 p.m.

The Planning Commission agendas, including staff reports, memorandums, and minutes are available from the Oregon City Web site home page under meetings.(www.orcity.org)

1. CALL TO ORDER

2. PUBLIC COMMENT ON ITEMS NOT LISTED ON AGENDA

3. PLANNING COMMISSION HEARING

a. CP 10-02 and WR 10-05: The Housing Authority of Clackamas County requested approval for a Concept (General) Development Plan and an Exemption from the Natural Resource Overlay District.

b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.

4. ADJOURN

Video Streaming & Broadcasts: The meeting is streamed live on Internet on the Oregon City's Web site at www.orcity.org and available on demand following the meeting. The meeting can be viewed live on Willamette Falls Television on Channels 23 and 28 for Oregon City and Gladstone residents; Channel 18 for Redland residents; and Channel 30 for West Linn residents. The meetings are also rebroadcast on WFTV. Please contact WFTV at 503-650-0275 for a programming schedule.

City Hall is wheelchair accessible with entry ramps and handicapped parking located on the east side of the building. Hearing devices may be requested from the City Recorder prior to the Commission meeting. Disabled individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the Planning Dept. at 503-722-3789.

Agenda Item No. 3a
Meeting Date: 30 Aug 2010

COMMISSION REPORT: CITY OF OREGON CITY

TO:	Planning Commission
FROM:	Laura Terway, Planner
PRESENTER:	Laura Terway, Planner
SUBJECT:	The Housing Authority of Clackamas County requested approval for a Concept (General) Development Plan and an Exemption from the Natural Resource Overlay District.
Agenda Heading: Public Hearing	
Approved by: Tony Konkol, Community Development Director	

RECOMMENDED ACTION (Motion):

Approve with Conditions.

BACKGROUND:

The approximately 18.5 acre subject site is comprised of two single-family homes and a 100 unit housing project called Clackamas Heights. The applicant submitted an application for a General (Concept) Plan and Natural Resource Overlay Exemption to demolish all of the existing structures and roadways within the project area and construct:

- Up to 283 dwelling units in an assortment of structure including single-family detached and attached units, stacked flats, carriage houses, and multi-family structures primarily owned by the Housing Authority of Clackamas County;
- A 6,000-square-foot community center (including the property management facility);
- A 200 square foot community police office;
- A 14,000 square foot early childhood education/childcare and family wellness center;
- A 2,000 square foot of neighborhood-serving retail space;
- A community garden and several parks for active recreation, passive recreation and wildlife habitat; as well as
- An internal utility and transportation system and improvements to the adjacent publi right-of-way.

The Concept (General) Development Plan will identify the layout, maximum intensity, phasing and mitigation of the proposed development. Approval of the General (Concept) Plan will be followed by a series of Type II Detailed Development Plan applications which will demonstrate the roadway design, building orientation and design, landscaping, etc. comply with the standards of the Oregon City Municipal Code and the approved Concept (General) Plan.

BUDGET IMPACT:

FY(s):
Funding Source:

ATTACHMENTS:

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF TYPE III LAND USE DECISION

Staff Report and Decision

Revised August 24, 2010

FILE NO.: CP 10-02 Concept (General) Development Plan
WR 10-05: Natural Resource Overlay District Exemption

APPLICATION TYPE: Type III

APPLICANT: Housing Authority of Clackamas County
13930 Gain Street
Oregon City, Oregon 97045

PROPERTY OWNERS: Housing Authority of Clackamas County
13930 Gain Street
Oregon City, Oregon 97045

Steve and Brenda Morrow
PO Box 135
Beavercreek, Oregon 97004

REPRESENTATIVE: Mithun, Inc.
1201 Alaskan Way, Suite 200
Seattle, Washington 98101

REQUEST: The Housing Authority of Clackamas County requested approval for a Concept (General) Development Plan and an Exemption from the Natural Resource Overlay District.

LOCATION: 13900 Gain Street, Oregon City, OR 97045,
Clackamas County Map 2-2E-29AD, Tax Lot 700

13907 Holcomb Boulevard, Oregon City, OR 97045,
Clackamas County Map 2-2E-29DA, Tax Lot 400

13921 Holcomb Boulevard, Oregon City, OR 97045,
Clackamas County Map 2-2E-29DA, Tax Lot 500

REVIEWERS: Laura Terway, AICP, Planner
Bob Cullison, EIT, Development Services Manager

RECOMMENDATION: **Planning Commission Approval with Conditions.**

PROCESS: *Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the City Commission, except upon*

appeal. Applications evaluated through this process include conditional use permits, preliminary planned unit development plans, variances, code interpretations, similar use determinations and those rezonings upon annexation under Section 17.06.050 for which discretion is provided. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. A city-recognized neighborhood association requesting an appeal fee waiver pursuant to 17.50.290(c) must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

A city-recognized neighborhood association requesting an appeal fee waiver pursuant to 17.50.290(C) must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 722-3789.

DECISION CRITERIA:
The development proposal will be analyzed for compliance with the following Chapters of the Oregon City Municipal Code:

Streets, Sidewalks and Public Places in Chapter 12.04,
Public and Street Trees in Chapter 12.08,
Subdivisions in Chapter 16.08,
Minimum Improvements and Design Standards for Land Divisions in Chapter 16.12,
Minor Partitions in Chapter 16.16,
"R-3.5" Dwelling District in Chapter 17.16,
Residential Design Standards in Chapter 17.20,
"MUC" Mixed Use Corridor District in Chapter 17.29,
Tree Protection Standards in Chapter 17.41,
Natural Resource Overlay District in Chapter 17.49,
Administration and Procedures are set forth in Chapter 17.50,
Off-Street Parking and Loading in Chapter 17.52,
Supplemental Zoning Regulations and Exception in Chapter 17.54,
Site Plan and Design Review in Chapter 17.62, and
Master Plans in Chapter 17.65.

CONCEPT (GENERAL) DEVELOPMENT PLAN:
A Concept (General) Development Plan identifies the layout, maximum intensity, phasing and mitigation of a development. Approval of the General (Concept) Plan is followed by a series of Detailed Development Plan applications demonstrating compliance with the Oregon City Municipal Code and the approved Concept (General) Plan. The Detailed Development Plans include roadway design; location, orientation and design of structures; landscaping, etc.

PROPOSED DEVELOPMENT:
The applicant proposed to demolish all of the existing structures and roadways within the General (Concept) Plan boundary and construct a development including the following uses:

- Single-family detached and attached units, stacked flats, carriage houses, and multi-family structures. Though a majority of the dwellings would be primarily owned by the Housing Authority of Clackamas County, a portion of the dwellings would be sold to the public at market rate.

	Number of Units	
Units by Bedroom	**Minimum**	**Maximum**
1 Bedroom	74	84
2 Bedroom	101	113
3 Bedroom	63	72
4 Bedroom	12	14
TOTAL	**250**	**283**
Units by Building Type		
Units structures south of Columbine St	163	184
Attached/detached units throughout site	87	99
TOTAL	**250**	**283**

- A 6,000-square-foot community center (including the property management facility)
- A 200 square foot community police office;
- A 14,000 square foot early childhood education/childcare and family wellness center;
- A 2,000 square foot of neighborhood-serving retail space;
- A community garden, park for active recreation, passive recreation and wildlife habitat;
- An internal utility and transportation system;
- Public improvements adjacent to the site:

  Holcomb Boulevard

  To the west of the proposed street that will intersect Holcomb, HACC will provide an additional 14.5 feet of right-of-way (ROW) to create a 44.5 foot ROW from the existing road centerline. The ROW will include half of a 12 foot turning lane, a 12 foot drive aisle, a 6 foot bicycle lane, an 8 foot parking zone, a 5 foot landscape strip (including 0.5 foot curb), a 7 foot sidewalk, and a 0.5 foot utility buffer. A single driveway will be constructed along this western border of the site. To the east of the proposed street, no improvements will be provided. The curb radii for the proposed street will be 28 feet to allow for fire truck access. The curb returns will include ADA access ramps and detectable warning devices.

  Front Avenue

  Along Front Avenue HACC will provide an additional 5 feet of ROW to create a 30 foot ROW from the existing centerline. The ROW will include a 10.5 foot drive lane, an 8 foot parking zone, a 5 foot landscape strip (including 0.5 foot curb), a 6 foot sidewalk, and a 0.5' utility buffer. Two new roads will access Front Avenue from the site (replacing the B street access points); Columbine Street and Rose Street. The Columbine curb radii will be 28 feet to allow for fire truck access, while the Rose Street curb radii will be 15 feet. All of the curb returns will include ADA access ramps and detectable warning devices.

Gain Street
The existing 25 foot ROW from centerline will be preserved, but the ROW will be improved to create a 14.5 foot drive lane, a 5 foot landscape strip (including 0.5 foot curb), a 5 foot sidewalk, and a 0.5' utility buffer. The landscape strip to the west of Harley Street will contain a conveyance swale that will direct public stormwater onto private property to receive water quality treatment. The B Street angled access point will be replaced with the proposed Harley Street access point, which will intersect Gain Street perpendicularly and line up with the existing Harley Street to the north of the site. All curb returns will have 28 foot radii and include ADA access ramps and detectable warning devices. A single driveway will be constructed along the eastern portion of this frontage.

Apperson Boulevard
Along the Apperson Boulevard frontage HACC will provide an additional 4.5 feet of ROW to create a 29.5 foot ROW from the existing centerline. The ROW will include an 11 foot drive aisle, an 8 foot parking zone, 5 foot landscape strip (including 0.5 foot curb), a 5 foot sidewalk, and a 0.5 foot utility buffer. The landscape strip will contain conveyance swales and curb cuts to collect public stormwater and direct it onsite for treatment. The four intersections that currently intersect Apperson will be replaced with three new intersections at proposed streets of Rock, Rose Street, and Columbine. The curb radii will be 15 feet for Rock and Rose streets, and 28 feet for Columbine Street. All of the curb returns will include ADA access ramps and detectable warning devices.

Minor adjustments to the right-of-way and/or street design may occur during the Detailed Development Plan).

The dwellings and ancillary residential uses would be located on the north portion of the site while the uses which serve the general public (such as the early childhood center and retail use) would be located on the southern portion of the site. Construction is expected to be initiated as early as 2011 and completed within a 5-year timeframe. However, since the project is dependent upon funding availability, completion may span over a 10 year period (Exhibits 1, 2 and 3). The applicant shall construct this development as proposed in this application and as required by the attached conditions of approval. **The applicant can satisfy this standard by complying with Condition of Approval 1.**

BACKGROUND:
The approximately 18.5 acre site is comprised of three tax lots bounded by Apperson Boulevard on the west, Gain Street on the north, Front Avenue on the east, and Holcomb Boulevard on the south.

Clackamas County Map 2-2E-29AD, Tax Lot 700-
Clackamas County Map 2-2E-29AD, Tax Lot 700 is owned by the Housing Authority of Clackamas County (HACC) and is developed with a circa 1940 public housing project called Clackamas Heights. The site includes 100 residential units in single-story duplexes, a community garden, open space, a community meeting room, property management and maintenance facilities, and HACC administrative offices. The site is intersected by A, B, C, and D streets which loop through the site while a series of pedestrian paths provide access through the site. The property is zoned "R-3.5" Dwelling District.

Clackamas County Map 2-2E-29DA, Tax Lot 400-
Clackamas County Map 2-2E-29DA, Tax Lot 400 is owned by Steve and Brenda Morrow and is constructed with a single-family dwelling and an accessory structure. The property is zoned "MUC-1" Mixed Use Corridor District.

Clackamas County Map 2-2E-29DA, Tax Lot 500-
Clackamas County Map 2-2E-29DA, Tax Lot 500 is owned by Steve and Brenda Morrow and is constructed with a single-family dwelling and an accessory structure. The property is zoned "MUC-1" Mixed Use Corridor District.

SURROUNDING LAND USES:
The subject site is primarily surrounded by single-family homes in the "R-6", "R-8", and "R-10" Dwelling Districts and the "MUC-1" Mixed Use Corridor District. The Park Place Church is located on the north side of Gain Street while Park Place Elementary School, which was closed in 2009, is 3 blocks north of the project site on Front Avenue. The nearest schools in operation are Holcomb Elementary, 1 mile northeast of the project site on Holcomb Boulevard, and Ogden Middle School, south of the project site off Redland Road. Steve's Select Market and Quick Stop Market are located adjacent to the southern portion of the project on Holcomb Boulevard.

OREGON CITY MUNICIPAL CODE CRITERIA:

Chapter 17.50 – ADMINISTRATION AND PROCEDURES
Finding: Complies. The Concept (General) Development Plan and Natural Resource Overlay District Exemption were processed as Type III applications. A Neighborhood Association meeting on July 15th, 2010 and a pre-application conference was held on February 23rd, 2010 with Oregon City staff. A notice of the development was mailed to property owners within 300 feet of the site, the Park Place Neighborhood Association, Citizen Involvement Commission and affected agencies on July 27th, 2010. The property was posted with a Land Use Action sign providing details and requesting comments about the development from July 30th, 2010 to after August 30th, 2010. The following public comments were received:

Jean Dalton of 13979 Holcomb Boulevard submitted comments addressed within this report (Exhibit 4).

Nancy Walters, Chair of the Park Place Neighborhood Association submitted comments stating the proposal does not conflict with the neighborhood interests and other comments addressed within this report (Exhibit 5).

Steven VanHaverbeke, Chair of the Land Use Chair for the Park Place Neighborhood Association submitted comments stating the proposal does not conflict with the neighborhood interests (Exhibit 6).

John Replinger, City consultant and transportation engineer for Replinger and Associates submitted comments addressed throughout this report (Exhibit 7).

Doug Whiteley, Deputy Fire Marshal at Clackamas County Fire District #1 submitted comments addressed throughout this report (Exhibit 7).

Mike Conrad, Chief of Police for Oregon City submitted comments indicating the proposal conflicts with Police interests due to the strain on the understaffed Police Department caused by additional low income housing units (Exhibit 8).

Gail Curtis of ODOT submitted comments regarding the application (Exhibit 11). John Replinger, transportation engineer for Replinger and Associates and City consultant reviewed the comments

and provided responses (Exhibit 8). Nancy Kraushaar, City Engineer and Public Works Director provided additional comments in Exhibit 13.

Comments received after August 23rd, 2010 will be forwarded to the Planning Commission at the August 30th public hearing. The public record will remain open until the Planning Commission closes the public hearing.

Chapter 17.16 – "R-3.5" DWELLING DISTRICT

17.16.020 *Permitted Uses.*
Complies as Proposed. The proposed development is within the "R-3.5" Dwelling District and "MUC-1" Mixed Use Corridor District. The applicant proposed the following uses within the "R-3.5" Dwelling District:

- Single-Family Attached Dwellings - Single-family attached dwellings are permitted in the "R-3.5" Dwelling District in Chapter 17.16.020.C of the Oregon City Municipal Code.
- Single-Family Detached Dwellings - Single-family detached dwellings are permitted in the "R-3.5" Dwelling District in Chapter 17.16.020.B of the Oregon City Municipal Code.
- Duplexes – Duplexes are permitted in the "R-3.5" Dwelling District in Chapter 17.16.020.A of the Oregon City Municipal Code.
- Multi-Family Dwellings – Multi-family dwellings are permitted within the Master Plan process in the "R-3.5" Dwelling District in Chapter 17.16.035.A of the Oregon City Municipal Code.
- Parks (Including Active Spaces and Gardens as well as Passive Spaces) – Parks are permitted in the "R-3.5" Dwelling District in Chapter 17.16.020.D of the Oregon City Municipal Code.
- A Community Center – Community Centers are permitted in the "R-3.5" Dwelling District in Chapter 17.16.020.D of the Oregon City Municipal Code.
- Clackamas Heights Property Management Office – The property management office would be located in the community center building to serve the residents of Clackamas Heights. The use is permitted as an accessory use in the "R-3.5" Dwelling District in Chapter 17.16.020.H of the Oregon City Municipal Code.
- Community Police Office - An approximately 200 square foot community policing office would be located on the site to provide space for the Oregon City Police Department on a part-time basis or as needed to serve Clackamas Heights and the adjacent neighborhood. The use is permitted as an accessory use in the "R-3.5" Dwelling District in Chapter 17.16.020.H of the Oregon City Municipal Code.

All of the proposed uses are permitted in the "R-3.5" Dwelling District.

17.16.030 *Conditional Uses*
Findings: Not Applicable. The applicant has not proposed a conditional use in the MUC-1 zone.

17.16.035 *Master Plans*
The following are permitted in this district when authorized by and in accordance with the standards contained in Chapter 17.65.
A. Multi-family residential units
B. Cottage Housing
Findings: Complies as Proposed. The applicant proposed to construct multi-family residential units in accordance with the Master Plan process, as permitted in Chapter 17.16.035.A of the Oregon City Municipal Code.

17.16.040.A *Minimum Lot Area.*
1. *Residential uses, three thousand five hundred square feet per unit.*
2. *Non-residential uses, zero minimum;*

Findings: The Concept (General) Development Plan does not include a land division or a lot line adjustment. The applicant requested an adjustment to this standard, please review the adjustments portion of this report.

17.16.040.B*. Minimum lot width, twenty-five feet;*
Findings: Not Applicable. The Concept (General) Development Plan does not include a land division or a lot line adjustment. Future land divisions or adjustments shall be reviewed upon submittal of a Detailed Development Plan.

17.16.040.C *Minimum lot depth, seventy feet;*
Findings: Not Applicable. The Concept (General) Development Plan does not include a land division or a lot line adjustment. Future land divisions or adjustments shall be reviewed upon submittal of a Detailed Development Plan.

17.16.040.D *Maximum building height, two and one-half stories, not to exceed thirty-five feet;*
Findings: Not Applicable. The Concept (General) Development Plan does not include construction of new structures or additions to existing structures. Construction of new structures and/or alterations to existing structures shall be reviewed upon submittal of a Detailed Development Plan.

17.16.040.E *Minimum Required Setbacks.*
1. *Front yard, five feet minimum setback,*
2. *Front porch, zero feet minimum setback,*
3. *Interior side yard,*
   Detached unit, 5 feet minimum setback
   Attached unit, 7 feet minimum setback on the side that does not abut a common property line.
4. *Corner side yard, ten-foot minimum setback,*
5. *Rear yard, fifteen-foot minimum setback,*
6. *Rear porch, ten feet minimum setback.*
7. *Attached and detached garages, twenty feet minimum setback from the public right-of-way where access it taken, except for alleys. Detached garages on an alley shall be setback a minimum of five feet.*

Findings: Not Applicable. The Concept (General) Development Plan does not include construction of a new structure, addition to an existing structure, a land division or a lot line adjustment. Future development shall be reviewed upon submittal of a Detailed Development Plan.

17.16.040.F *Garage Standards: See Section 17.21 – Residential Design Standards.*
Findings: Not Applicable. The Concept (General) Development Plan does not include construction of a new structure or addition to an existing structure. Alterations to structures onsite shall be reviewed upon submittal of a Detailed Development Plan.

17.16.040.G *Maximum Lot Coverage: The footprint of all structures 200 square feet or greater shall cover a maximum of 55 percent of the lot area.*
Findings: Complies as Proposed. The applicant demonstrated that the maximum lot coverage for the overall project site will not exceed 55 percent. Lot coverage shall be subject to review upon submittal of a Detailed Development Plan.

17.16.050 *Single-Family Attached Residential Units and Duplex Units.*
The following standards apply to single-family dwellings, in addition to the standards in Section 17.16.040.

A. Maintenance Easement. Prior to building permit approval, the applicant shall submit a recorded mutual easement that runs along the common property line. This easement shall be 10 feet in width. A lesser width may be approved by the Community Development Director if it is found to be sufficient to guarantee rights for maintenance purposes of structure and yard.
Response: The applicants will record maintenance easements, as required by this standard, when the Detailed Development Plan is proposed, if appropriate.
B. Conversion of Existing Duplexes. Any conversion of an existing duplex unit into two single-family attached dwellings shall be reviewed for compliance with the requirements in Section 16 for partitions, Section 17.16 and the State of Oregon One and Two Family Dwelling Specialty Code prior to final recordation of the land division replat. (Ord. 99-1027 §4, 1999)
Findings: Not Applicable. The Concept (General) Development Plan does not include construction of a new structure or addition to an existing structure. Alterations to structures onsite will be reviewed with a Detailed Development Plan.

Chapter 17.29 – "MUC-1" MIXED USE CORRIDOR DISTRICT

17.29.020 *Permitted Uses--MUC-1 and MUC-2.*
Complies as Proposed. The proposed development is within the "R-3.5" Dwelling District and the "MUC-1" Mixed Use Corridor District. The applicant proposed the following uses within the "MUC-1" Mixed Use Corridor District:

- An Early Childhood Education and Wellness Center - Child care centers and/or nursery schools are permitted in the "MUC-1" Mixed Use Corridor District in Chapter 17.29.020.C of the Oregon City Municipal Code.
- Neighborhood Retail – The use neighborhood retail will be determined upon submission of a Detailed Development Plan. The permitted uses are described in Chapter 17.29.020 of the Oregon City Municipal Code.

17.29.030 *Conditional Uses--MUC-1 and MUC-2 Zones.*
The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:
A. Ancillary drive-in or drive-through facilities …
L. Passenger terminals (water, auto, bus, train)
Findings: Not Applicable. The applicant has not proposed a conditional use in the MUC-1 zone.

17.29.040 *Prohibited Uses in the MUC-1 and MUC-2 Zones.*
The following uses are prohibited in the MUC District:
A. Distributing, wholesaling and warehousing; …
H. Self-service storage facilities
Findings: Not Applicable. The applicant has not proposed a prohibited use in the MUC-1 zone.

17.29.050 *Dimensional standards—MUC-1.*
Findings: Not Applicable. The Concept (General) Development Plan does not include a land division or lot line adjustment. Future land divisions or alterations to lot sizes shall be reviewed upon submittal of a Detailed Development Plan.

17.29.060 *Dimensional Standards--MUC-2.*
Findings: Not Applicable. The project site is not within the "MUC-2" Mixed Use Corridor District.

17.29.070 *Floor Area Ratio (FAR).*

Findings: Not Applicable. The project site is not within the "MUC-2" Mixed Use Corridor District and thus a minimum floor area ratio does not apply to the project.

Chapter 17.65 – MASTER PLANS

17.65.050.A *Existing Conditions Submittal Requirements.*

17.65.050.A.1.a *Current uses of and development on the site, including programs or services.*
Findings: Complies as Proposed. The applicant identified the current uses of the development site in the narrative. Clackamas County Map 2-2E-29AD, Tax Lot 700 is currently developed with a public housing project (Clackamas Heights) which includes 100 residential units in single-story duplexes; a community garden, Housing Authority of Clackamas County administrative offices that serve all HACC properties, a property management office and warehouse/maintenance facilities for Clackamas Heights, and a community meeting room. Clackamas County Map 2-2E-29DA, Tax Lot 400 and 500 are each constructed with a single-family dwelling and an accessory structure.

17.65.050.A.1.b *History or background information about the mission and operational characteristics of the institution that may be helpful in the evaluation of the concept development plan.*
Findings: Complies as Proposed. The applicant provided a narrative statement describing history or background information about the mission and operational characteristics of the Housing Authority. The Housing Authority of Clackamas County (HACC) is a public housing agency that provides affordable, safe, decent, and sanitary housing opportunities to low-income people in Clackamas County. The HACC is comprised of two programs: 1) public housing that is owned, rented, and maintained by HACC; and 2) the Section 8 Housing Choice Voucher Program that allows residents to find their own housing in the rental market and use vouchers for rental assistance. Both programs are federally funded through the US Department of Housing and Urban Development (HUD).

HACC currently owns, operates and maintains 566 public housing units which serve low-income families, elderly persons, and persons with disabilities in the following configuration:

Public Housing Project	# Units	Acres or Land Use	Target Population
Clackamas Heights	100	19.28 acres	Families
Oregon City View Manor	100	21.33 acres	Families and Disabled
Hillside Park	100	21.67 acres	Families and Disabled
Hillside Manor	100	High-Rise	Seniors and Disabled
Scattered Sites	166	avg. 5,000-sf lots	Families

In January 2008, HACC completed a strategic planning process that evaluated various scenarios for restructuring the agency's housing portfolio. The study stemmed from the need to rehabilitate aging properties, capitalize on underused sites, create a long-term, financially viable portfolio, and generally provide a more modern, resource-efficient, healthy, well-maintained, and attractive environment for HACC residents. In response to the study, the HACC Board of Commissioners adopted a 10-Year Strategic Direction to Redevelop and Reposition the HACC Housing Portfolio and an accompanying 5-Year Action Plan. In accordance with the 5-Year Action Plan, HACC elected to focus on Clackamas Heights as its first major redevelopment project.

17.65.050.A.1.c *A vicinity map showing the location of the Concept Development Plan boundary relative to the larger community, along with affected major transportation routes, transit, and parking facilities.*
Findings: Complies as Proposed. The applicant submitted a vicinity map displaying the subject site relative to the larger community, including major transportation routes, transit, and parking facilities.

17.65.050.A.1.d *Non-institutional uses that surround the development site. May also reference submitted maps, diagrams or photographs.*
Findings: Complies as Proposed. The applicant provided a narrative statement describing the non-institutional uses that surround the site. The site is primarily surrounded by single-family homes in the "R-6", "R-8", and "R-10" Dwelling Districts as well as the "MUC-1" Mixed use Corridor zoning designations. Steve's Select Market on Holcomb Boulevard and Quick Stop Market border the project site to the south on the corner of Front Avenue and Holcomb Boulevard while Park Place Church is north of the site on Gain Street.

17.65.050.A.1.e *Previous land use approvals within the Concept Development Plan boundary and related conditions of approval.*
Findings: Complies as Proposed. The applicant provided a narrative statement describing the known previous approvals onsite. The City's records indicated the following approvals may be associated with the subject site:

- Conditional Use, CU 00-07 – File not found, it is unknown if the file is associated with property; and
- Site Plan and Design Review, SP 91-18 – File not found, it is unknown if the file is associated with property.

17.65.050.A.1.f *Existing utilization of the site. May also reference submitted maps, diagrams or photographs.*
Findings: Complies as Proposed. The applicant provided a narrative statement describing the existing uses of the site. Clackamas County Map 2-2E-29AD, Tax Lot 700 is developed with a public housing project (Clackamas Heights) including 100 residential units in single-story duplexes; a community garden, Housing Authority of Clackamas County administrative offices that serve all HACC properties, a property management office and warehouse/maintenance facilities for Clackamas Heights, and a community meeting room. Clackamas County Map 2-2E-29DA, Tax Lot 400 and 500 are each constructed with a single-family dwelling and an accessory structure.

17.65.050.A.1.g *Site description, including the following items. May also reference submitted maps, diagrams or photographs.*
(1) Physical characteristics,
(2) Ownership patterns,
(3) Building inventory,
(4) Vehicle/bicycle parking,
(5) Landscaping/usable open space,
(6) FAR/lot coverage,
(7) Natural resources that appear on the City's adopted Goal 5 inventory,
(8) Cultural/historic resources that appear on the City's adopted Goal 5 inventory, and,
(9) Location of existing trees 6" in diameter or greater when measured 4' above the ground. The location of single trees shall be shown. Trees within groves may be clustered together rather than shown individually.
Findings: Complies as Proposed. The applicant provided a narrative statement including a description of the site and a series of maps displaying the above existing conditions on sheets C4.1 – C4.4. As discussed in Chapter 17.65.050.C.4 of this report, no City-designated cultural or historic resources are located on the subject site and the applicant has requested an exemption to the Natural Resource Overlay District which is analyzed in Chapter 17.49 of this report.

17.65.050.A.1.h *Existing transportation analysis, including the following items. May also reference submitted maps, diagrams or photographs.*

(1) Existing transportation facilities, including highways, local streets and street classifications, and pedestrian and bicycle access points and ways;
(2) Transit routes, facilities and availability;
(3) Alternative modes utilization, including shuttle buses and carpool programs; and
(4) Baseline parking demand and supply study (may be appended to application or waived if not applicable).

Findings: Complies as Proposed. The applicant provided a narrative statement describing the existing transportation analysis of the site as well as a series of maps with the transportation facilities (Exhibits 2 and 3).

Street Network and Connectivity. The site contains a local street network (streets A, B, C and D) which loop into the site but do not provide connections through the site. Harley Street terminates at Gain Street on the northern boundary of the site, and Rock Street terminates at Front Avenue east of the site. The following arterial and collector streets boarder the site:

- Holcomb Boulevard, a minor arterial south of the site carries an average daily traffic (ADT) of 8,062 cars (2008). Holcomb Curve, located just west of a bridge over OR 213, provides access to a small commercial center located at the southeast corner of Holcomb Boulevard and Redland Road. Holcomb Boulevard also provides the site's primary access to OR-213 (via Redland Road) and continues to downtown Oregon City as Abernethy Road.
- Apperson Boulevard, a neighborhood collector west of the site, carries a low-to-moderate traffic volume (ADT of 552 cars in 2008), and has speed humps to control traffic speeds.
- Front Avenue, a two-lane collector street east of the site had an ADT of 778 cars in 2008 and provides access to Park Place Elementary school which closed in June, 2009.

Bicycle Facilities and Connectivity. There are no designated bicycle facilities directly serving the site. Adjacent to Clackamas Heights, Holcomb Boulevard and Apperson Boulevard are proposed bikeways in the Clackamas County Bicycle Master Plan. Holcomb Boulevard has wide striped shoulders in the vicinity of Clackamas Heights but lacks a shoulder on the east (downhill) side of Holcomb Curve. The Holcomb Boulevard Pedestrian Enhancement Plan does not recommend bike lanes on Holcomb Curve due to financial constraints. Apperson Boulevard does not have shoulders but has speed humps for traffic calming and carries low-to-moderate traffic volumes.

Pedestrian Facilities and Connectivity. The local street system within Clackamas Heights includes sidewalks on one side of the street while pedestrian accessways provide access throughout Clackamas Heights, including a path to Steve's Market and Holcomb Boulevard. A sidewalk has been constructed on the north side of Holcomb, east of Front Avenue, with the Holcomb Boulevard Pedestrian Enhancement Plan. Front Avenue has continuous but narrow sidewalks on the west side of the street, though some segments have inadequate widths due to obstructions, such as mailboxes, which can be problematic for those in wheelchairs. Apperson Boulevard has continuous sidewalks on both sides, except the east side of the segment between Gain Street and La Rae Road.

Transit Routes, Facilities and Availability. The primary bus route serving Clackamas Heights is TriMet Route 34, with two sets of basic bus stops on opposing sides of street within about ¼-mile walking distance of the site at the intersections of Holcomb and Front and Holcomb and Apperson. Both sets of stops have standard TriMet stop poles and route signs, but no other amenities. There are adequate walking routes to both intersections; however, there are no marked street crossings at either intersection. The frequency of transit service is extremely limited; Route 34 has five round trips per day along Holcomb; all other trips terminate in downtown Oregon City. The nearest stop for those other trips on Route 34 is about a 1¼- mile walk from the site. All Saturday service on Route 34 was discontinued in September 2009 as part of overall TriMet service reductions. Productivity on Route 34

in FY 2009 was 14.9 boardings per revenue hour. Several other bus lines provide good regional connectivity from downtown Oregon City on both weekdays and weekends, as frequently as every 15 minutes. Route 32 is a slightly shorter walk from Clackamas Heights than other routes that terminate at Oregon City Transit Center.

In addition, the Clackamas County Social Services Division operates two transportation programs that provide service to residents of Clackamas Heights. The Transportation Reaching People (TRP) demand-response service for seniors and persons with disabilities, and the Catch-a-Ride (CAR) shuttle service open to seniors and persons with disabilities as well as low-income households. The shuttle provides rides to certain types of appointments as well as connectivity to TriMet buses due to the limited service to Clackamas Heights. Both programs operate Monday through Friday between 8 am and 5 pm on a donation basis.

Alternative Modes Utilization. Alternative mode of transportation is relatively limited at Clackamas Heights due to limited facilities and service. Based on data from the 2000 US Census for the Census block group containing the Clackamas Heights site (Tract 223, Block Group 2), 11.9% of workers carpool to work while 1.8% use public transportation. No residents reported walking or bicycling to work. By comparison, for Oregon City as a whole, 12.4% of workers carpool to work and 3.4% use public transportation, while 2.3% walk to work and 1.1% bicycle.

Baseline Parking Demand and Supply. Approximately 148 off-street parking spaces are currently provided at Clackamas Heights. On-street parking is available on the local streets within Clackamas Heights and along Front Avenue, however, there is no on-street parking on Apperson Boulevard. Sheet C0.2 of the applicant's submittal (Exhibit 2) illustrates the location of non-residential off-street parking provided at Clackamas Heights.

17.65.050.A.1.i *Infrastructure facilities and capacity, including the following items.*
(1) Water,
(2) Sanitary sewer,
(3) Stormwater management, and
(4) Easements.
Findings: The applicant submitted all required infrastructure information (Exhibit 2).

17.65.050.A.2 *Maps and Plans.*

17.65.050.A.2 a *Existing conditions site plan.*
Findings: Complies as Proposed. The applicant submitted a site plan of the existing conditions of the site in sheets C0.1 through C0.4 of the application (Exhibit 2).

17.65.050.A.2 b. *Vicinity map.*
Findings: Complies as Proposed. The applicant submitted a vicinity map of the development site (Exhibit 2).

17.65.050.A.2 c. *Aerial photo.*
Findings: Complies as Proposed. The applicant submitted an aerial photo depicting the subject site and property within 250 feet of the proposed development boundaries on sheet A0.01 (Exhibit 2).

17.65.050.B.1 *Submittal Requirements*

17.65.050.B.1.a *The proposed duration of the concept development plan.*

Findings: Complies as Proposed. The applicant indicated that the General (Master) Plan is anticipated to be implemented over a period of five years and may begin as early as 2011. However, since development is dependent on available funding; it may take up to 10 years to complete the project.

17.65.050.B.1.b *The proposed development boundary. May also reference submitted maps or diagrams.*
Findings: Complies as Proposed. The applicant indicated that the project boundaries include Clackamas County Map 2S2E29AD, tax Lot 700 as well as 2S2E29DA, Tax Lots 400 and 500. A map of the project boundary was submitted on sheets A1.01 and CO.1 of the application (Exhibit 2).

17.65.050.B.1.c *A description, approximate location, and timing of each proposed phase of development, and a statement specifying the phase or phases for which approval is sought under the current application. May also reference submitted maps or diagrams.*
Findings: Complies as Proposed. The applicant submitted a description and associated map describing the maximum development at each phase of the General Plan. Development shall be further refined during the Detailed Development Plan stage. The phases would generally include the following:

> Prior to initiating phase 1, HACC will relocate all Clackamas Heights residents to suitable housing.
>
> Phase 1 includes vacation of the public right-of-way within the project boundaries, demolition and removal of existing residences and streets, and construction of new streets and utilities. The existing HACC administrative offices, property management/maintenance facilities and community room may remain in place and in use during Phase 1 and perhaps later phases, depending on funding availability.
>
> Phase 2 includes construction of a community center (with space for Clackamas Heights property management facilities), community park, dwellings on the eastern portion of the site and multi-family structures on the southwest portion of the site.
>
> Phases 3 and 4 include construction on the northwest portion of the site, including single-family attached units along Apperson Boulevard.
>
> Phase 5 includes construction of an early childhood education and family wellness center plus supporting office space, as well as a small, neighborhood-serving retail space in the southernmost portion of the site.

ESTIMATED PHASING PLAN

Phase	Number of Units	Residential GSF (maximum)	Non-Residential GSF (maximum)	Total GSF (maximum)
1	demolition; development of new infrastructure			
2a	Up to 88	83,000	6,200	89,200
2b	Up to 48	39,000		39,000
2c	Up to 40	39,500		39,500
2d	Up to 11	19,500		19,500
3a	Up to 40	38,500		38,500
3b	Up to 7	12,000		12,000
4a	Up to 43	44,500		44,500
4b	Up to 8	14,000		14,000
5			16,000	16,000

TOTAL	**Between 250 and 283**	**290,000**	**22,200**	**312,200**

GSF = gross square feet

17.65.050.B.1.d *An explanation of how the proposed development is consistent with the purposes of Section 17.65, the institutional zone, and any applicable overlay district.*
Findings: Refer to the findings in Chapter 17.65.050.C.1 of this report.

17.65.050.B.1.e *A statement describing the impacts of the proposed development on inventoried Goal 5 natural, historic or cultural resources within the development boundary or within 250 feet of the proposed development boundary.*
Findings: Complies as Proposed. The applicant submitted documentation regarding Goal 5 resources.

17.65.050.B.1.f *An analysis of the impacts of the proposed development on the surrounding community and neighborhood, including:*
(1) Transportation impacts as prescribed in Subsection "g" below;
(2) Internal parking and circulation impacts and connectivity to sites adjacent to the development boundary and public right-of-ways within 250 feet of the development boundary;
(3) Public facilities impacts (sanitary sewer, water and stormwater management) both within the development boundary and on city-wide systems;
(4) Neighborhood livability impacts;
(5) Natural, cultural and historical resource impacts within the development boundary and within 250 feet of the development boundary.
Findings: Complies as Proposed. The applicant submitted an analysis of the impacts of the proposed development on the surrounding community. An analysis of the impacts are contained within the report.

17.65.050.B.1.g *A summary statement describing the anticipated transportation impacts of the proposed development. This summary shall include a general description of the impact of the entire development on the local street and road network, and shall specify the maximum projected average daily trips, projected AM and PM peak hour traffic and the maximum parking demand associated with build-out each phase of the master plan.*
Findings: Complies as Proposed. The applicant submitted a transportation impact analysis including the anticipated transportation impacts (Exhibit 3).

17.65.050.B.1.h *In addition to the summary statement of anticipated transportation impacts, an applicant shall provide a traffic impact study as specified by City requirements. The transportation impact study shall either:*
(1) address the impacts of the development of the site consistent with all phases of the concept development plan; or
(2) address the impacts of specific phases if the City Engineer determines that the traffic impacts of the full development can be adequately evaluated without specifically addressing subsequent phases.
Findings: Complies as Proposed. The applicant submitted a traffic impact study conducted for the Clackamas Heights which addresses anticipated transportation impacts for the 2016 buildout year, as determined in consultation with Oregon City and the Oregon Department of Transportation.

17.65.050.B.1.i *If an applicant chooses to pursue option h(1), the applicant may choose among three options for implementing required transportation capacity and safety improvements:*
(1) The concept development plan may include a phasing plan for the proposed interior circulation system and for all on-site and off-site transportation capacity and safety improvements required on the existing

street system as a result of fully implementing the plan. If this option is selected, the transportation phasing plan shall be binding on the applicant.
(2) The applicant may choose to immediately implement all required transportation safety and capacity improvements associated with the fully executed concept development plan. If this option is selected, no further transportation improvements will be required from the applicant. However, if a concept development plan is later amended in a manner so as to cause the projected average daily trips, the projected AM or PM peak hour trips, or the peak parking demand of the development to increase over original projections, an additional transportation impact report shall be required to be submitted during the detailed development plan review process for all future phases of the development project and additional improvements may be required.
(3) The applicant may defer implementation of any and all capacity and safety improvements required for any phase until that phase of the development reaches the detailed development plan stage. If this option is selected, the applicant shall submit a table linking required transportation improvements to vehicle trip thresholds for each development phase.
Findings: Complies as Proposed. The Traffic impact study concluded and John Replinger, City consultant for Replinger and Associates confirmed that no additional improvements are required to address transportation impacts, beyond the proposed development. The applicant proposed to construct all transportation improvements in phase I of development.

17.65.050.B.1.j *The applicant or city staff may propose objective development standards to address identified impacts that will apply within the proposed development on land that is controlled by the institution. Upon approval of the concept development plan, these standards will supersede corresponding development standards found in this code. Development standards shall address at least the following:*
(1) Pedestrian, bicycle and vehicle circulation and connectivity;
(2) Internal vehicle and bicycle parking;
(3) Building setbacks, landscaping and buffering;
(4) Building design, including pedestrian orientation, height, bulk, materials, ground floor windows and other standards of Chapter 17.62; and
(5) Other standards that address identified development impacts.
Findings: Not Applicable. The applicant has not proposed alternative objective development standards.

17.65.050.B.2. *Maps and diagrams.*

17.65.050.B.2.a. *A preliminary site circulation plan showing the approximate location of proposed vehicular, bicycle, and pedestrian access points and circulation patterns, parking and loading areas or, in the alternative, proposed criteria for the location of such facilities to be determined during detailed development plan review.*
Findings: Complies as Proposed. The applicant submitted a preliminary site circulation plan for the proposed development on sheets T1.1, T1.2, T1.3, and C2.1 of Exhibit 2.

<u>*Vehicle Circulation Plan.*</u> Vehicle circulation is provided by an internal grid system which connects to the streets bounding the site. The internal system provides two east-west connections through the site (Rose and Columbine streets), and one north-south connection (an extension of Harley Street between Gain and Columbine Streets). Alleys provide access to all off-street parking areas.

<u>*Bicycle Circulation Plan.*</u> The applicant proposed to construct a 6-foot bicycle lane along the frontage of the site on Holcomb Boulevard to provide access to downtown Oregon City and Holcomb School. All of the site's local streets and site access points will be suitable for bicycle access. Rose and Columbine Streets would provide east-west access through the site, connecting to both Front Avenue and Apperson Boulevard. The proposed street connecting Columbine Street and Holcomb Blvd, and the extension of

Harley Street between Gain and Columbine Streets would provide a north-south bicycle connectivity, including a local access route to Park Place School (upon reopening). Apperson Boulevard is an existing route adjacent to the site with a moderate-traffic bicycle route connecting to Holcomb Boulevard or Clackamas River Drive.

Pedestrian Circulation Plan All proposed local streets will be constructed with sidewalks on both sides of the street and connections to the external street grid. The applicant will also construct sidewalks on the Holcomb Boulevard frontage of the site and reconstruct the sidewalks adjacent to the site on Apperson Boulevard and Front Streets to accommodate street furnishings that obstruct portions of the existing sidewalks. Major pathways facilitate efficient pedestrian access within the site while minor pathways and paved areas provide access to individual land uses including to each dwelling unit.

17.65.050.B.2.b *The approximate location of all proposed streets, alleys, other public ways, sidewalks, bicycle and pedestrian access ways and other bicycle and pedestrian ways, transit streets and facilities, neighborhood activity centers and easements on and within 250 feet of the site. The map shall identify existing subdivisions and development and un-subdivided or unpartitioned land ownerships adjacent to the proposed development site and show how existing streets, alleys, sidewalks, bike routes, pedestrian/bicycle access ways and utilities within 250 feet may be extended to and/or through the proposed development.*
Findings: Complies as Proposed. The applicant submitted a map displaying the approximate location of all proposed transportation facilities on sheets T1.1, T1.2, T1.3, and C2.1 of Exhibit 2. The proposed development would provide better connections through the site, including a southward extension of Harley Street to Holcomb Boulevard.

17.65.050.B.2.c *The approximate location of all public facilities to serve the proposed development, including water, sanitary sewer, stormwater management facilities.*
Findings: Complies as Proposed. The applicant submitted a map of the public facilities on sheets C3.1 and C3.2 of Exhibit 2.

17.65.050.B.2.d *The approximate projected location, footprint and building square footage of each phase of proposed development.*
Findings: Complies as Proposed. The applicant submitted a map displaying the approximate location and footprint of the phased development. The final sizes and locations are subject to change in the Detailed Development Plan review. The maximum square footages are described below

Number of Units	Residential gross square feet (maximum)	Non-Residential gross square feet (maximum)	Total gross square feet (maximum)
Between 250 and 283	290,000	22,200	312,200

17.65.050.B.2.e *The approximate locations of proposed parks, playgrounds or other outdoor play areas; outdoor common areas and usable open spaces; and natural, historic and cultural resource areas or features proposed for preservation. This information shall include identification of areas proposed to be dedicated or otherwise preserved for public use and those open areas to be maintained and controlled by the owners of the property and their successors in interest for private use.*
Findings: Complies as Proposed. The applicant submitted a map displaying the approximate locations of the proposed parks and open spaced areas on Sheet A1.02 of Exhibit 2.

17.65.050.C. *Approval Criteria for a Concept Development Plan.*

17.65.050.C.1 *The proposed Concept Development plan is consistent with the purposes of Section 17.65.*

Findings: Complies as Proposed. Chapter 17.65.010 of the Oregon City Municipal Code states: *"It is the intent of this Chapter to foster the growth of major institutions and other large-scale development, while identifying and mitigating the impacts of such growth on surrounding properties and public infrastructure. The City recognizes the valuable services and employment opportunities that these developments bring to Oregon City residents. The master plan process is intended to facilitate an efficient and flexible review process for major developments and to provide them with the assurance they need over the long term so that they can plan for and execute their developments in a phased manner. To facilitate this, the master plan process is structured to allow an applicant to address the larger development issues, such as adequacy of infrastructure and transportation capacity, and reserve capacity of the infrastructure and transportation system before expenditure of final design costs."*

The proposed Concept Development Plan will help the Housing Authority of Clackamas County (HACC) increase the number and quality of affordable housing units available to County residents, and social programs for Clackamas Heights and Park Place. In addition, replacement of the HACC administrative and maintenance facilities with more efficient facilities elsewhere presents opportunities for the ECEFWC and neighborhood retail opportunities, to serve the Park Place neighborhood. The impacts of the development are mitigated with transportation improvements, social programs and a variety of parks available to the public. The applicant has requested numerous adjustments to facilitate the development.

17.65.050.C.2 *The transportation system has sufficient capacity based on the City's level of service standards and is capable of safely supporting the development proposed in addition to the existing and planned uses in the area, or will be made adequate by the time each phase of the development is completed.* **Complies as Proposed.** The applicant submitted a traffic study prepared by Green Light Transportation (Exhibit 3) describing the anticipated transportation impacts of the proposed development. The trip generation analysis is based on a maximum development intensity of 285 units, though the applicant has only proposed a maximum of 283 units.

The proposed development includes several new local through streets to enhance the connectivity through the site and to the surrounding neighborhood. The proposed Columbine Street and Rose Streets would provide two through connections between Front Street and Apperson Boulevard. Harley Street would be extended south from Gain Street to a T-intersection at the proposed Columbine Street. A proposed street would connect Columbine Street to Holcomb Boulevard which when combined with the proposed extension of Harley Street are expected to provide the primary north-south circulation through the site. Traffic volumes from the site are expected to be well-distributed across site access points and will be relatively low, and site connections will operate with minimal delay.

The applicant requested an adjustment to construct a private street system within the boundaries of the development. Prior to construction of the road system, the applicant will submit an application to vacate the existing public right-of-way within the boundary of the development, which would transfer the land from public right-of-way to private property. The applicant would subsequently construct a private street system to the standards as public right-of-way as well as a series of private alleys and open space tracts which would be accessible to the public with a public access and utility easement, though maintained by the property owner. The location of the public access and utility easements are displayed on Figure 1 of the applicant's narrative in Exhibit 2.

Maximum Projected Trip Generation
Based on the projected mix and size of uses, including a maximum 285 residential units, redevelopment of Clackamas Heights is expected to generate approximately 150 new primary trips and 10 new pass-by

trips during the AM peak hour and 184 new primary trips and 8 new pass-by trips in the PM peak hour. Additional detail on trip generation is included in the Traffic impact study in Exhibit 3.

PROPOSED TRIP GENERATION, NET NEW TRIPS

		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
LAND USE	DAILY	TOTAL	IN	OUT	TOTAL	IN	OUT
TOTAL DRIVEWAY TRIPS:							
PRIMARY TRIPS	1,630	150	52	98	184	109	75
PASS-BY TRIPS	104	10	5	5	8	4	4

Project AM and PM Peak Hour Traffic

The Traffic impact study concluded all study intersections will operate acceptably with forecast traffic volume increases at the buildout year (2016). This projection assumes completion of phase 1 of the Highway 213 "Jughandle" Improvement Project. All site access points are forecast to operate at level-of-service (LOS) A in both peak periods, with the exception of the street and driveway on Holcomb Boulevard, forecast to operate at LOS B or C. There are two one-letter changes between existing traffic and 2016 background levels (not including Clackamas Heights) at Anchor Road/Redland Road in both peak periods and at Redland Road / Highway 213 in the peak PM period. The only one-letter changes in level-of-service in 2016 from background level (without the Clackamas Heights redevelopment) to total with Clackamas Heights redevelopment is from A to B at the Redland Road / Highway 213 intersection in the AM peak period, based on only a 0.3-second increase in delay. A detailed traffic analysis is provided in the Traffic impact study in Exhibit 3.

SUMMARY OF AM AND PM PEAK HOUR TRAFFIC: LOS (DELAY IN SECONDS)

Study Intersection	Existing (AM/PM)	2016 Background (AM/PM)	2016 Total (AM/PM)
Front Ave. / Holcomb Blvd.	B (12.2) / B (12.3)	B (12.5) / B (12.8)	B (13.3) / B (13.6)
Redland Rd. /Abernethy Rd.-Holcomb Blvd.	C (34.6) / D (43.1)	D (35.3) / D (46.6)	D (36.4) / D (49.1)
Redland Rd. /OR 213	A (8.2) / A (9.9)	A (9.8) / B (15.0)	B (10.1) / B (17.4)
Washington St/Clackamas River Dr/OR 213	B (11.4) / B (12.7)	B (12.0) / B (13.1)	B (12.2) / B (13.4)
Anchor Way / Redland Rd	C (23.9) / D (34.9)	D (27.0) / E (44.3)	D (27.3) / E (45.4)
Abernethy Rd. / Washington St.	B (15.8) / B (12.3)	B (16.2) / B (12.5)	B (16.3) / B (12.8)

Internal Parking

Parking will be provided within the development in both off-street and on-street stalls. The applicant has estimated the site will contain approximately 410 parking stalls. John Replinger, transportation engineer and City consultant of Replinger and Associates, concurred with the parking reductions proposed by the applicant. Compliance with parking standards will be analyzed with each Detailed Development Plan.

Public Improvements

In addition to the internal street system proposed by the application, the development proposal included the following public improvements adjacent to the site:

Holcomb Boulevard

To the west of the proposed street that will intersect Holcomb, HACC will provide an additional 14.5 feet of right-of-way (ROW) to create a 44.5 foot ROW from the existing road centerline. The ROW will include half of a 12 foot turning lane, a 12 foot drive aisle, a 6 foot bicycle lane, an 8 foot parking zone, a 5 foot landscape strip (including 0.5 foot curb), a 7 foot sidewalk, and a 0.5 foot utility buffer. A single driveway will be constructed along this western border of the site. To the east of the proposed street, no improvements will be provided. The curb radii for the proposed street will be 28 feet to allow for fire truck access. The curb returns will include ADA access ramps and detectable warning devices.

Front Avenue

Along Front Avenue HACC will provide an additional 5 feet of ROW to create a 30 foot ROW from the existing centerline. The ROW will include a 10.5 foot drive lane, an 8 foot parking zone, a 5 foot landscape strip (including 0.5 foot curb), a 6 foot sidewalk, and a 0.5' utility buffer. Two new roads will access Front Avenue from the site (replacing the B street access points); Columbine Street and Rose Street. The Columbine curb radii will be 28 feet to allow for fire truck access, while the Rose Street curb radii will be 15 feet. All of the curb returns will include ADA access ramps and detectable warning devices.

Gain Street

The existing 25 foot ROW from centerline will be preserved, but the ROW will be improved to create a 14.5 foot drive lane, a 5 foot landscape strip (including 0.5 foot curb), a 5 foot sidewalk, and a 0.5' utility buffer. The landscape strip to the west of Harley Street will contain a conveyance swale that will direct public stormwater onto private property to receive water quality treatment. The B Street angled access point will be replaced with the proposed Harley Street access point, which will intersect Gain Street perpendicularly and line up with the existing Harley Street to the north of the site. All curb returns will have 28 foot radii and include ADA access ramps and detectable warning devices. A single driveway will be constructed along the eastern portion of this frontage.

Apperson Boulevard

Along the Apperson Boulevard frontage HACC will provide an additional 4.5 feet of ROW to create a 29.5 foot ROW from the existing centerline. The ROW will include an 11 foot drive aisle, an 8 foot parking zone, 5 foot landscape strip (including 0.5 foot curb), a 5 foot sidewalk, and a 0.5 foot utility buffer. The landscape strip will contain conveyance swales and curb cuts to collect public stormwater and direct it onsite for treatment. The four intersections that currently intersect Apperson will be replaced with three new intersections at proposed streets of Rock, Rose Street, and Columbine. The curb radii will be 15 feet for Rock and Rose streets, and 28 feet for Columbine Street. All of the curb returns will include ADA access ramps and detectable warning devices.

Summary of Anticipated Transportation Impacts

The Transportation Impact Study concluded:

- The proposed site plan would have positive impacts on connectivity in the Park Place neighborhood by providing additional north-south and east-west traffic-calmed street connections, particularly for bicyclists and pedestrians. The site plan would also improve sidewalk conditions on all the streets bounding the site.
- Due to on-street and off-street parking provided on the project site, no adverse impact to on-street parking is anticipated in the surrounding neighborhood. Bicycle parking that would be provided as part of the site plan would significantly enhance the existing bicycle parking facilities.
- Traffic volumes are expected to be well distributed at site access points and will be relatively low.
- Vehicle queues at surrounding intersections will have adequate vehicle storage available. The Washington Street/Highway 213 intersection currently exceeds capacity during the AM peak hour; however, the planned Highway 213 "jughandle" project will improve operations. This and other

surrounding intersections studied will continue to operate with acceptable levels of service with the new development. The southbound left-turn lane at the Holcomb/Redland Road intersection currently may exceed striped storage during the PM hour, however the intersection will continue to have sufficient excess capacity; it operates with a flexible timing plan and has detectors to sense the presence of vehicles and adjust the signal timing to accommodate peak queues.

- A design of the 6-space parking lot serving the neighborhood retail use was identified as unacceptable by forcing motorists who enter the lot when it is full to make a 3-point turn to exit the lot. The access on Holcomb Boulevard was determined to be adequate, but the design of the parking lot was problematic. The purpose of the General (Concept) Development Plan is to address impacts of the proposed development. Approval of this application does not include approval of the 6-space parking lot. The design of the parking lot will be reviewed for compliance with the Oregon City Municipal Code upon submission of a Detailed Development Plan application.
- The applicant requested an adjustment for access spacing between the existing western driveway for Steve's Select Market and the proposed north-south street connecting to Holcomb Boulevard, and between the proposed north-south street and the driveway access to the parking lot serving the neighborhood retail. This configuration is due to the limited length of site frontage along Holcomb Boulevard. The transportation study concluded there is no safety issues associated with the adjustment due to relatively low traffic volumes.
- The applicant requested an adjustment for the intersection spacing standards for the proposed Columbine Street, which will intersect Front Avenue in the same location as C Street currently intersects Front Avenue. Traffic volumes will be low at both accesses on Front Avenue, with 95th percentile southbound queues of 25-feet or less on Front Avenue, therefore conflicts are not anticipated.

John Replinger, transportation engineer and City consultant, Replinger and Associates, generally concurred with the transportation analysis concluding "the TIA meets City requirements. The TIA indicates that development will cause modest increases in traffic but the existing system plus planned improvements can accommodate it. The applicant proposes modification of the intersection and access spacing standards to help achieve desired densities. The key issue of concern raised by the applicant's traffic engineer, and which I share, relates to the parking lot serving the neighborhood commercial establishment. Its small size, layout, and lack of an alternative access raise a potential safety problem. If all spaces are occupied, a motorist entering the lot would have no safe alternative for exiting the lot. This can be remedied at the Detailed Development Plan or site plan review stages" (Exhibit 7). Bob Cullison, Development Services Manager for Oregon City concurred with the proposed development and the proposed public improvements.

17.65.050.C.3 *Public services for water supply, police, fire, sanitary waste disposal, and storm-water disposal are capable of serving the proposed development, or will be made capable by the time each phase of the development is completed.*

Findings: Complies with Condition. The applicant provided a narrative statement describing the existing infrastructure of the site and a map locating the facilities on sheets C0.4, C1.1 and C1.2 of Exhibit 2.

Domestic Water. There are existing water mains in the streets bounding the site. New water services would be installed through the proposed public access easements to connect to existing water mains on Apperson Boulevard, Gain Street, Front Avenue, and Holcomb Boulevard. Apperson Boulevard contains an 8-inch water main, which feeds numerous 2-inch lines within the site and an 8-inch line that extends throughout the site, serving fire hydrants and reconnecting to various 2-inch lines and the 12-inch water main on Front Avenue. The eastern half of Gain Street contains an 8-inch water main that currently does not serve the site. Holcomb Boulevard contains a 12-inch water main that serves fire hydrants and

buildings along the Holcomb frontage. New fire hydrants would be placed according to fire department code and units that cannot be reached by fire trucks will have sprinklers installed.

Police Protection. In order to mitigate the impact of the development the applicant has proposed to provide a Police substation within the redeveloped site to mitigate the impact on the Police Department by allowing a space for officers to work and write reports within a close vicinity to the use.. Mike Conrad, Police Chief of Oregon City submitted comments the addition of additional "low income housing units will place an even greater strain on an understaffed police department". The 2002 Housing Resource Document for the City of Oregon City Comprehensive Plan (Exhibit 12) estimated the number of dwelling units which could be constructed in the City compliant with the 2004 proposed zoning and Comprehensive Plan amendments. The city utilized this study when projecting acceptable levels of future Police services. As the applicant has not requested a zone change and the number of units could have been constructed outright (though in a different location) staff believes that the approximately 200 additional units the Housing Authority has proposed have been previously accounted for.

Fire Protection. Fire hydrants currently exist around and within the site. Gain Street contains a hydrant on the northern side of the street that lines up with northeastern corner of the site. Front Avenue has a hydrant on the northeastern corner of the Rock Street intersection, the southeastern corner of the northern "C" Street intersection, and the northeastern corner of the Holcomb intersection. Holcomb Boulevard contains a fire hydrant on the northern side of the street which will be decommissioned for site redevelopment due to the road alignment to Holcomb. Apperson Boulevard has a hydrant at the northeastern corner of its intersection with Holcomb, on the western side of the street midway between Holcomb and D Street, on the western side of the street between the two D Street intersections, at the northwestern corner of the southern B Street intersection, and at the northwestern corner of the Gain Street intersection. Five additional hydrants are located on the HACC parcel.

Doug Whiteley, Lieutenant Deputy Fire Marshal for Clackamas County Fire District #1 submitted the following comments (Exhibit 8):

Apparatus Access:

1. All inside turning radii that are part of required fire apparatus access way to be minimum of 28'. This also applies to the alley access off of Gain St. if intended to be used as part of required fire apparatus access.
2. Provide parking restrictions on both sides of private access drives/alleys that are part of required apparatus access. For parking restrictions, provide either "No Parking Fire Lane" signs or paint applicable curbs red with white lettering to say "No Parking Fire Lane". (The first 150' on the 2 drives off of Columbine St., 1 drive off of Harley St., and the alley off of Gain St.)
3. Provide parking restrictions for narrow portion 32' roadways with same standard as #2. This refers to narrowed areas where roads "T" into the 32' road.
4. All portions of new construction are to be within 150' of approved fire apparatus access roadway. Buildings that do not comply are 45, 46, 47, 48, 62, and 63. May provide fire sprinklers in lieu of this requirement.

   The alley between Gain St. and Rose St. is considered a dead end road since Rose St. is not part of the approved fire apparatus access route. Due to this, fire apparatus access will end 150' into the noted alley. If not using the alley as fire apparatus, building #44 does not comply with #4 above.
5. Please note on plans that there will not be fences installed separating buildings per our previous conversations. The installation of fences will alter fire accessibility.

Water Supply:

1. Average hydrant spacing for project to be minimum of 500' on required fire apparatus

roadways.
2. All portions on new construction to be within 600' of a fire hydrant via approved fire apparatus access route.

The purpose of the General (Concept) Plan is to review the general layout and impacts of the site. The specific design of the roadway and utilities will be reviewed upon submission of a Detailed Development Plan. Detailed Development Plan applications shall comply with the Clackamas County Fire District Comments, dated August 3, 2010.

Sanitary Sewer. An 8-inch sanitary line extends along Apperson Boulevard from south of the B Street intersection with Apperson Boulevard. Holcomb Boulevard contains a 10-inch sanitary line that runs southwest, bends north where the Apperson line intersects it, and then continues flowing southwest as a 12-inch line. The southern portion of Front Avenue contains an 8-inch line that runs south and flows into the Holcomb line. North of the northern C Street intersection, Front Avenue contains an 8-inch line that runs north to Gain Street. From there it flows west through the 15-inch line in Gain Street. At the intersection of Gain and Apperson Boulevard, the line bends north and follows Apperson Boulevard. Additional sanitary lines are within the site, as shown on sheets C0.4, C1.1, and C1.2 of Exhibit 2.

A new sanitary line would run along the proposed street on Tax Lot 400 and connect to the existing line in Holcomb Boulevard. A sanitary main would run through the proposed Harley Street extension and collect sanitary flows from laterals that extend along the proposed east-west streets. The new sanitary main would connect to existing line in Gain Street at the north end of the site. In addition, a new sanitary line would be added along the northern section of Apperson Boulevard just north of the proposed Rock Street alignment and bend east at Gain Street to connect into the Gain Street line.

Storm Water. A 12-inch storm line extends north along Apperson Boulevard, turns east at the Gain Street intersection, and flows east to daylight into a swale briefly before flowing into a pipe that bends north and extends along Harley Street. East of Harley Street, Gain Street contains a combination of pipes and swales. Front Street contains a 12-inch storm line that starts at Rock Street and flows north. Front Street also contains a 12-inch line that begins between the two C Street intersections and flows south to Holcomb Boulevard, where it joins a 12-inch line in Holcomb that begins at Steve's Select Market and appears to flow northeast. Holcomb also contains a 12-inch line that begins approximately 250 feet northeast of the Apperson intersection and flows southwest. Additional storm lines are within the site.

The Concept Development Plan utilizes low-impact development (LID) methods to the maximum extent feasible. Proposed on-site streets would shed runoff toward one side (north or east) and into widened landscape strips that would contain green-street stormwater swales that would treat, partially infiltrate, detain, and convey stormwater. To prevent long-term ponding, each swale would have an underdrain layer. At each road intersection, stormwater in the swales would either flow below ground and reemerge into a new swale or drain to an underground storm trunk line. The trunk line would be installed only where necessary to limit the amount of piping needed. If additional stormwater detention is required, the trunk line would daylight into a detention pond in the northeastern portion of the site. From there, the trunk line and swale underdrain system would connect to the City's existing storm system within the Harley Street right-of-way.

The alleys and private parking surfaces would have a permeable pavement, such as pervious concrete, that allows stormwater to drain into a sub-grade rock drainage layer. This will allow some of the stormwater to infiltrate. The remaining stormwater would collect in perforated sub-drainage pipes and drain to the public storm system.

Roof runoff would be either infiltrated on site or collected for non-potable use such as irrigation. Roofs that face the street would drain into gently sloped, vegetated basins on the site that can overflow into

the public street swales during heavy rain events. Roofs that face the private alleys would drain to a system of underground storm collection pipes. The collection system would drain either to underground cisterns for water reuse or soakage trenches for infiltration. Overflow from the system would daylight into street swales if the grade allows or flow into the stormwater trunk line.

Natural Gas. The Concept Development Plan will provide the proposed residential and non-residential buildings with natural gas service. A gas lateral extends onto the northwestern corner of the site from a 2-inch line in the western half of Gain Street. Gas laterals also extend from the 4-inch line in Holcomb Boulevard to Steve's Select Market and one of the residences along the Holcomb frontage. An additional gas lateral extends westward along the platted 6th Street from the 2-inch line in Front Avenue, then turns north along the boundary between the HACC property and the adjacent residential properties to serve an existing building and a 2-inch gas line exists in Apperson Boulevard between "B" Street and Holcomb Boulevard.

Bob Cullison, Manager of the Development Services Division at Oregon City, concurs with the applicant's proposal. The applicant is responsible for this project's compliance with Engineering Policy 00-01. **The applicant can satisfy this standard by complying with Conditions of Approval 2 and 3.**

17.65.050.C.4 *The proposed Concept Development plan protects any inventoried Goal 5 natural, historic or cultural resources within the proposed development boundary consistent with the provisions of applicable overlay districts.*
Findings: Complies as Proposed. There are no inventoried Goal 5 historic, or cultural resources within the proposed development boundary, as shown on Sheet A0.02 of the applicant's submittal (Exhibit 2). Clackamas Heights was built circa 1940 and is old enough for eligibility as an historic resource, however the applicant consulted with the State Historic Preservation Office (SHPO) regarding eligibility of Clackamas Heights as well as potential impacts of the proposed development on nearby historic resources. Within 250 feet of the site, there are some City-designated historic resources which are displayed on the Historic Resources Map in the applicant's submittal. Julie Osborne, Historic Preservation Specialist with SHPO, reviewed the project site and nearby resources and concluded that Clackamas Heights is not eligible for listing as an historic resource and that the proposed development would not affect nearby resources. A letter from Ms. Osborne and supporting documentation is included in the development application (Exhibit 2).

The archeological significance of the site was additionally reviewed. SHPO indicated that archaeological resources are not of concern as the site has been disturbed in the past. The Confederated Tribes of the Grand Ronde Community of Oregon Cultural Resources Department reviewed the development proposal in conjunction with the Tribes' archives and databases. Eirik Thorsgard, Cultural Protection Coordinator for the Tribes, identified no archaeological/cultural or Traditional Cultural Properties within the project area and concurred with the recommendations of SHPO (Exhibit 2).

The applicant received an exception from the Natural Resource Overlay District, which exempted the site from the only identified Goal 5 resource. Please refer to the analysis in Chapter 17.49 for compliance with the Natural Resource Overlay District.

17.65.050.C.5 *The proposed Concept Development plan, including development standards and impact mitigation thresholds and improvements adequately mitigates identified impacts from each phase of development. For needed housing, as defined in ORS 197.303(1), the development standards and mitigation thresholds shall contain clear and objective standards.*
Findings: Complies as Proposed. The Concept (General) Development Plan provides adequate mitigation for the anticipated impacts of development including installation of an interior transportation

system for vehicles, bicycles and pedestrians, stormwater captures and treatments, improvements to the adjacent public right-of-way as well as construction of a community center and a police office.

17.65.050.C.6 *The proposed Concept Development Plan is consistent with the Oregon City Comprehensive Plan and its ancillary documents.*
Findings: Complies as Proposed. The proposed development is consistent with the City's Comprehensive Plan. In addition, the plan would redevelop an underutilized site (Plan Goals 14.2, 11.1; Policy 14.2.1, 11.1.4) in an efficient manner (Plan Goal 2.1, Policies 2.1.2 and 2.1.3) through a master planning process (Policy 2.1.3) to:

- Provide needed affordable housing at a higher density than exists on the site (Plan Goals 10.1, 10.2, Policies 10.2.3, 10.1.4, 10.2.2, 12.1.3);
- Support and enhance neighborhood livability (Goal 2,4, Policies 2.4.2, 2.4.3, 2.4.5);
- Develop a mix of land use types on the project site (Goal 2.1, Policy 2.1.2);
- Provide active recreation areas and passive recreation opportunities that retain the natural environment (Goals 5.1, 8.1; Policies 5.1.2,8.1.1, 8.1.9, 8.1.14);
- Improve multi-modal, safe, transportation connections within and through the site while mitigating traffic impacts (Goals 9.8, 11.6, 12.1, 12.3, 12.5, 12.6, 12.7, 13.2; Policies 2.4.3, 9.8.4, 11.6.1, 12.1.1, 12.1.4, 12.3.1, 12.3.2, 12.3.3, 12.5.1, 12.6.1, 12.6.2, 12.6.4, 12.7.1, 12.7.2, 12.7.5);
- Provide adequate public facilities and incorporate low-impact stormwater management design (Goals 5.4, 6.2, 11.1 11.2, 11.4, 11.9, 11.10, 12.7; Policies 5.4.11, 5.4.13, 5.4.16, 6.2.2, 11.1.4, 11.1.6, 11.2.4, 11.4.2, 11.4.3, 11.10.1, 11.10.3, 12.7.1, 12.7.5);
- support existing and future commercial uses along Holcomb Boulevard (Plan Goals 2.3, 2.5, 9.2, 9.5, 9.8, 12.1; Policies 2.3.1, 2.5.1, 2.5.4, 9.2.1, 9.5.1, 9.8.4, 12.1.2, 12.1.3); and
- Lastly, the plan was developed with considerable input from Oregon City staff, Clackamas Heights residents, neighborhood representatives and Park Place neighborhood association, social service providers, and others, as demonstrated in the Appendix (public participation plan and public meeting records) (Plan Goals 1.1, 1.2 and 1.4; Policies 1.1.1, 1.4.1).

17.65.050.D *Duration of Concept Development Plan. A Concept Development plan shall involve a planning period of at least five years and up to twenty years. An approved Concept Development plan shall remain in effect until development allowed by the plan has been completed through the detailed development plan process, the plan is amended or superseded, or the plan expires under its stated expiration date.*
Findings: Complies as Proposed. The General (Concept) Plan is expected to be initiated as early as 2011 and completed within a 5-year timeframe. However, construction is dependent upon funding availability and the General Plan construction may not be completed for up to 10 years.

17.65.060 *Detailed Development Plan*
Findings: Complies as Proposed. The applicant has not submitted a Detailed Development Plan application. Approval of a Detailed Development Plan is required prior to construction.

17.65.070. *Adjustments to Development Standards.*

17.65.070.A *Purpose. In order to implement the purpose of the City's master plan process, which is to foster the growth of major institutions and other large-scale development, while identifying and mitigating their impacts on surrounding properties and public infrastructure, an applicant may request one or more adjustments to the applicable development regulations as part of the master planning process. These include, but are not limited to, items such as: dimensional standards of the of the underlying zone, Site Plan and Design Review criteria, residential design standards, and standards for land division approval.*
Findings: Complies. The applicant requested multiple adjustments to numerous development standards.

17.65.070.B *Procedure. Requests for adjustments shall be processed concurrently with a general development plan. An adjustment request at the detailed development plan review shall cause the detailed development plan to be reviewed as a Type III application.*
Findings: Complies as Proposed. The applicant requested adjustments to the Oregon City Municipal Code. The adjustments have been processed in conjunction with the General (Concept) Plan as a Type III application.

17.65.070.C *Regulations That May Not be Adjusted. Adjustments are prohibited for the following items:*
1. *To allow a primary or accessory use that is not allowed by the regulations;*
2. *To any regulation that contains the word "prohibited";*
3. *As an exception to a threshold review, such as a Type III review process; and*
4. *Any exception to allow a use not identified as a permitted or conditional use in the underlying zone.*

Findings: Complies as Proposed. The applicant has not request an adjustment to any of the above regulations.

17.65.070.D *Approval Criteria.*

Adjustment #1 - "Streets" in General:
The applicant requested an adjustment to construct a private street system within the boundaries of the development. Prior to construction of the road system, the applicant will submit an application to vacate the existing public right-of-way within the boundary of the development, which would transfer the land from public right-of-way to private property. The applicant would subsequently construct a private street system to the standards as public right-of-way as well as a series of private alleys and open space tracts which would be accessible to the public with a public access and utility easement, though maintained by the property owner. The location of the public access and utility easements are displayed on Figure 1 of the applicant's narrative in Exhibit 2. The applicant requested an adjustment allowing all private streets, alleys and open space onsite identified in Figure 1 be utilized in place of "right-of-way", "streets," or "street," in all applicable Oregon City Municipal Code standards. The adjustment would utilize the edge of the easements as property lines for the purposes of frontage, setbacks, orientation, etc.

Allowing private streets with public access and utility easements would increase the intensity of development of the site. If the City Commission approves the vacation of the public right-of-way, the Housing Authority will obtain the square footage of land which was previously designated as right-of-way. The HACC could utilize that land to add additional dwelling units to the "R-3.5" portion of the site while complying with the minimum lot standard of 3,500 square feet per unit.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. OCMC Chapter 12.04 ensures that streets are developed in a consistent manner and meet design standards for safety, efficient traffic movement, etc. The applicant proposed a street system which would be designed to meet the standard in the Oregon City Municipal Code, except where adjustments are requested, to provide a safe transportation system with efficient traffic movement. The adjustment would provide the right-of-way to the Housing Authority and in return the Housing Authority would be responsible for maintenance of the streets. Since the transportation system would be constructed to the same standards as public streets, the adjustment would comply with the purpose of the adjustment being modified.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*

Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies with Condition. The impact of the private streets shall be mitigated through the design which shall meet the standards of the Oregon City Municipal Code (except where adjustments are requested) and accessibility to the public and utilities via an easement. Prior to constructing the onsite transportation system, the applicant shall have recorded a public access and utility easement, approved by the City Development Services and Planning Divisions and accepted by the City Commission in the approximate locations identified in figure 1 of Exhibit 2. **The applicant can satisfy this standard by complying with Condition of Approval 4.**

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and has received an exemption for the site from the Natural Resources Overlay District, thus adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The private streets will be analyzed upon submittal of the Detailed Development Plan. The street system provides an interconnected and accessible, multi-modal street system (Plan Policies 12.1.1, 12.3.1, 12.3.2, 12.6.4) with a design that calms traffic to improve safety (Policies 12.5.3, 11.10.3) and incorporates bioswales and other methods to reduce stormwater runoff (Policies 5.4.16, 6.2.2, 11.4.2, 11.4.4,12.7.1, 12.7.5). The proposed street layout and design accommodates fire vehicles and enhances police protection by providing clear lines of sight along streets and the opportunity to drive through the site (Plan Goals 11.9, 11.10). It also promotes connectivity within the Park Place neighborhood and between neighborhood residential uses and commercial uses on Holcomb Boulevard (Policy 2.4.3). The narrower streets (adjustment described below) proposed provide a more pedestrian/bicycle-friendly experience (Plan Goals 12.1, 12.3; Policies 12.1.1, 12.1.4 as well as a more compact, efficient site plan (Plan Goals 2.1, 13.1). The narrower streets also equate to less impervious surface on the site (Policy 11.4.2), and will calm traffic – leading to safer streets (Goal 12.5; Policies 12.5.3, 11.10.3).

Adjustment #2 - OCMC 17.20.050 - Residential Design Standards, Main Entrances.
Oregon City Municipal Code Chapter 17.20.050 requires "the main entrance for each structure shall face the street; or be at an angle up to 45 degrees from the street". The applicant requested an adjustment to allow lot configuration so that buildings can front onto public access easements and parks/open spaces within the site because no internal public streets are proposed. This adjustment is in conjunction with adjustment #1.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to*

be modified;
Findings: Complies as Proposed. The purposes of the regulation are to provide "eyes on the street" for safety and to encourage active pedestrian use of the street, as well as to provide better visibility and security for residences. The adjustment complies with this purpose as all residential units will face a private street or open area that is open to the public and designed for regular public use.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. No negative impacts are anticipated as all residential units will face a private street or other area with a public access easement to provide safety, visibility, and security.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment will enhance neighborhood livability (Goal 2.4) by providing a more active, vibrant community that encourages neighbor interactions (Policy 2.4.2).

Adjustment #3 - OCMC 12.04.025 Street design – Minimum right-of-way.
The applicant submitted a street design plan on sheet C2.1 of Exhibit 2 depicting a variation to the local street design standard in OCMC 12.04.025. An alternative design is permitted by 12.04.025.B. The street designs facilitate safe, multi-modal travel within the site and improve the site's connectivity to the surrounding neighborhoods and transportation facilities. The private streets are required to the local street standards, which include a maximum right-of-way width of 54 feet. The applicant requested an adjustment below which exceed the maximum right-of-way (in this case public access and utility easement) width.

- The width of the public access and utility easement for the street connecting Columbine Street and Holcomb Boulevard, as well as Columbine and Harley streets, are proposed to be 64 feet wide, which exceed the maximum right-of-way standard of 54 feet. The wider easement is proposed to provide sidewalks and generous planting strips/bioswales for stormwater infiltration.
- The width of the public access and utility easement for Rock and Rose streets are proposed to be 56 feet in width, exceeding the maximum right-of-way width of 54 feet.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be*

modified;
Findings: Complies as Proposed. The purpose of the right-of-way width standards is to provide adequate space along streets for vehicular, pedestrian and bike travel, utilities, trees and other vegetation a well as adequate sight distance. The maximum right-of-way width limits the area that would need to be publicly maintained and provides adjacent property owners with a maximum limit for public right-of-way. Because the proposed streets will be privately maintained and on the same parcel as the proposed development, the greater width proposed will have no effect on public maintenance or development of adjacent land.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. The adjustment would have no negative impacts on the public right-of-way or adjacent neighbors. The adjustment was reviewed by John Replinger, City consultant of Replinger and Associates, whom stated "the proposal for right-of-way width of 64 feet on certain streets is to allow greater width for plantings and bioswales between the sidewalk and curb and to allow parking on both sides of the street. Allowing flexibility for wider planting areas also benefits pedestrians by moving them further from traffic. Allowing parking on both sides of the street tends to slow traffic on these streets and provides an additional buffer between the moving traffic and pedestrians. I see no objection to the wider rights-of-way from a traffic standpoint" (Exhibit 7).

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment allows sidewalks and wide planting strips, which will incorporate bioswales to provide part of the on-site stormwater facilities. Pedestrian improvements and on-site stormwater treatment that incorporates low-impact design are both consistent with Oregon City's long-term goals in the Comprehensive Plan (Goal 5.4 [Policy 5.4.16], 6.2, 11.4, 11.6, 12.1, 12.3, 12.7).

Adjustment #4 - OCMC 12.04.045 Street design – Constrained local streets and/or rights-of-way.
OCMC Chapter 12.04.045 states constrained streets shall include a pavement width of 20 feet for streets with no on-street parking and 28 feet for streets with parking on one side of the street. Constrained local streets shall maintain a twenty-foot wide unobstructed accessway. The applicant submitted a street

design plan with a pavement width of 26.5 feet with parking on both sides for proposed local Rock and Rose Street as displayed on Sheet C2.1 of Exhibit 2. An alternative design to the standard may be approved per OCMC 12.04.025.B.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. Minimum pavement widths provide an adequate space for safe travel. The narrower paved width standard for constrained streets acknowledges that a narrower street may be appropriate for some situations.

Rose and Rock streets are bordered by residences and the community park, where low traffic speeds are desirable to provide safety for pedestrians and bicyclists, including children. The adjustment would likely result in lower traffic speeds on the constrained streets and a disincentive for through traffic to utilize the site.

The design of the constrained streets were reviewed by Bob Cullison, City Development Services Manager, whom agreed with the design of the roadway as well as Doug Whitely, Deputy Fire Marshal for Clackamas County Fire District #1 whom was concerned about access for fire vehicles. In response to the department's concerns, the applicant prepared and submitted a diagram showing fire access which includes providing a sprinkler system for all buildings more than 150 feet from a fire access.

According to John Replinger, transportation engineer and City consultant, "A street width of 26.5 feet with parking on both sides still allows for a travel lane of 10.5 to 12 feet depending on the width of the parking lanes. Numerous cities have accepted narrower street widths in this range. They are often known as "queuing streets" since vehicles must queue or take turns moving into unused parking spaces for oncoming traffic. The effect is a definite slowing of traffic on the street. Many older neighborhoods in Portland have streets of this width and work acceptably or even well. The most usual objection to use of streets of this width comes from the emergency service providers who are concerned about their ability to operate fire trucks and hook up hoses in such areas. From a traffic operations standpoint, I think narrow streets for short distances as proposed here are acceptable". The adjustment would thus provide adequate width for safe travel.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. The adjustment would likely result in lower traffic speeds on the constrained streets, and a disincentive for through traffic. The impact of the adjustment is limited access for emergency services. The applicant has worked with the Deputy Fire Marshal to address any concerns. The specific design of the roadway and utilities will be reviewed upon submission of a

Detailed Development Plan. Detailed Development Plan applications shall comply with the Clackamas County Fire District Comments, dated August 3, 2010. **The applicant can satisfy this standard by complying with Condition of Approval 2.**

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment allows for a narrower paved width, which will have less impervious area than a standard street and therefore contribute less stormwater runoff (Plan Policy 11.4.2). The narrower width also provides a traffic-calming effect—contributing to public safety (Policies 12.5.3, 11.10.3). Safety concerns related to limited fire access are mitigated by installing a sprinkler system in affected buildings. The public easements along the streets provide adequate space for sidewalks and wide planting strips, which will incorporate bioswales to provide part of the on-site stormwater facilities. Pedestrian improvements and on-site stormwater treatment that incorporates low-impact design are both consistent with Oregon City's long-term goals in the Comprehensive Plan (Goals 2.4, 5.4 [Policy 5.4.16], 6.2, 11.4, 11.6, 12.1, 12.3, 12.7).

Adjustment #5 - OCMC 12.04.040 - Minimum Street Intersection Spacing Standards.
The applicant proposed an adjustment to the intersection spacing standards for the intersection of Columbine Street (local) and Holcomb Boulevard (minor arterial) as measured along Front Avenue (collector). The applicant requested an adjustment to reduce the intersection spacing to 145 feet between the intersections rather than the 300-foot minimum spacing required in Oregon City Municipal Code (OCMC) Table 12.04.040, and the 400 foot spacing required by Oregon City Transportation System Plan (TSP) between a local street and a minor arterial. OCMC 12.04.040 states "a lesser distance between intersections may be allowed, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the reduction in intersection spacing will not pose a safety hazard".

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The purpose of intersection spacing standards is to maintain efficient traffic flow, minimize turning conflicts at intersections, and provide adequate queuing capacity at intersections. OCMC 12.04.040 states "a lesser distance between intersections may be allowed, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the reduction in intersection spacing will not pose a safety hazard." The applicant submitted a traffic study by Green Light Transportation which concluded that Columbine Street would be located in the same location as the existing southern intersection of C Street and Front Avenue and the diagonal configuration of Holcomb Boulevard through the rectangular street grid result in an inability to comply with the spacing standards for Columbine Street on both the east and west sides of the project site. The applicant noted that providing two east-west connections through the project site provides a more efficient and safe transportation system than meeting the intersection spacing standard on Front Street. John Replinger, transportation engineer for Replinger and Associates and City consultant, agreed with the applicant's conclusions.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*

Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. The site is currently constructed with the intersection of C Street/Front Avenue at the location of the intersection of Columbine Street/Front Avenue. The replacement of the existing intersection with a new intersection will not create a new impact to be mitigated. Although site redevelopment would generate more trips than the current Clackamas Heights development, street connectivity and the availability of alternative routes using different streets are also greatly improved. John Replinger, transportation engineer for Replinger and Associates and City consultant, did not recommend any additional measures to mitigate the impact of the adjustment. Mr. Replinger stated "the TIA indicates that development will cause modest increases in traffic but the existing system plus planned improvements can accommodate it" (Exhibit 7).

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The intersections of Front Avenue and Holcomb or Front Avenue and the proposed Columbine Street are not within an environmental overlay district. Furthermore, the subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. Although the proposed adjustment is inconsistent with TSP spacing standards for local and arterial intersections on a collector, the overall street grid design of the Concept Development Plan, including two east-west street connections through the site, is consistent with TSP and Comprehensive Plan direction for improved connections and gridded streets (Plan Goal 12.6 [Policy 12.6.4]).

Adjustment #6 - Access spacing standard (Oregon City Street Design Standards).
The applicant proposed accesses which would not meet the minimum access spacing standards in the Oregon City Design Standards Manual. The applicant proposed an adjustment to the access spacing standard for the accesses identified below:

- Holcomb Boulevard is designated as a minor arterial, which requires accesses and other accesses and/or streets to be spaced a minimum of 150 feet apart. The applicant proposed an adjustment to allow approximately 140 feet between the proposed retail parking lot access along Holcomb Boulevard and the proposed street connecting to Holcomb Boulevard.
- Front Avenue is designated as a collector street, which requires accesses and other accesses and/or streets to be spaced a minimum of 100 feet apart. Although the proposed Columbine Street will join

Front Avenue approximately 145 feet north of Holcomb Boulevard, this intersection is 75 feet north of the driveway to the Quick Stop Market.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The purpose of access spacing is typically to maintain efficient traffic flow and minimize turning conflicts from vehicles entering and exiting the street.

- The applicant proposed an adjustment to allow approximately 140 feet between the proposed retail parking lot access along Holcomb Boulevard and the proposed street connecting to Holcomb Boulevard. The design separates the driveway from the proposed street as much as possible while still meeting design standards for the parking lot driveway and the proposed street, given the limited by the length of site frontage along Holcomb Boulevard. A number of existing driveways nearby along Holcomb currently do not comply with this standard. The retail space will be connected to nearby uses with pedestrian accessways to encourage walking to the retail space and the Traffic impact study for the proposed Conceptual Development Plan indicated that the traffic volumes at the access would be relatively low (Exhibit 3).

John Replinger a transportation engineer at Replinger and Associates and a City consultant, stated "the Concept Development Plan separates the driveway from the proposed street as much as possible while still meeting design standards for the parking lot driveway and the proposed street; however, access spacing is limited by the length of site frontage along Holcomb Boulevard…The spacing proposed by the applicant is acceptable" (Exhibit 7).

- The applicant requested an adjustment to allow approximately 60 feet between the existing western driveway to Steve's Select Market and the proposed street connecting to Holcomb Boulevard. The site's frontage on Holcomb Boulevard is less than 200 feet and the proposed street extends along the eastern edge of the site in order to allow development on the remainder of the parcel. The retail space will be connected to nearby uses with pedestrian accessways to encourage walking to the retail space and the Traffic impact study for the proposed Conceptual Development Plan indicated that the traffic volumes at the access would be relatively low (Exhibit 3).

  John Replinger a transportation engineer at Replinger and Associates and a City consultant, stated "as noted in the Traffic impact study, traffic volumes at both accesses are low. This change in access spacing is acceptable due to the site's constraints" (Exhibit 7).

- Although the proposed Columbine Street will join Front Avenue approximately 145 feet north of Holcomb Boulevard, this intersection is 75 feet north of the driveway to the Quick Stop Market. The spacing will allow an internal street grid which will increase connectivity and replace an existing intersection and access spacing. The Traffic impact study (Exhibit 3) noted the volume at both accesses and on Front Avenue are relatively low and conflicts are not anticipated.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*

Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. Potential impacts to traffic flow on Holcomb Boulevard are mitigated by: locating the driveway as far from the proposed street as possible within the limited frontage on Holcomb Boulevard and providing pedestrian connections to encourage pedestrian trips to the retail space rather than vehicular. Mr. Replinger commented that "one problem identified in the TIA is that if all parking spaces in this lot are occupied, a vehicle entering the lot would have no options for exiting other than backing onto Holcomb Boulevard. This would not be an acceptable design. The spacing proposed by the applicant is acceptable, but the lack of an alternative route for exiting the parking lot serving the lot is unacceptable. The lack of an alternative access for this parking lot can be remedied in the Detailed Development Plan". He concluded that mitigation is not required to accommodate the development, though "the key issue of concern raised by the applicant's traffic engineer, and which I share, relates to the parking lot serving the neighborhood commercial establishment. Its small size, layout, and lack of an alternative access raise a potential safety problem. If all spaces are occupied, a motorist entering the lot would have no safe alternative for exiting the lot". The location of the accessway does not pose a safety concern, though the design of the off-street parking lot circulation is of concern and will be further analyzed and remedied at the Detailed Development Plan.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment does not directly conflict with the Comprehensive Plan or its ancillary documents. As the transportation engineers have determined the spacing of the entrances to be safe, the proposal complies with Goal 12.5 of the Comprehensive Plan to "develop and maintain a transportation system that is safe".

Adjustment #7 - OCMC 12.04.100 - Street design—Alleys.
Oregon City Municipal code requires public alleys in the "R-3.5" Dwelling District. The applicant proposed an adjustment to the standard to construct private alleys, rather than public, with a public access and utility easement.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The applicant proposed to construct private alleys constructed to the same standard as public alleys with a public access and utility easement. The purpose of the regulation would be upheld with the adjustment because the public would have access to the alley and the alley would be designed to the same standards as required for public alleys.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The

development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. The adjustment would not result in negative impacts because the applicant proposed to construct the private alleys to the same standard as public alleys and they would be accessible to the public.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources. None of the alley intersections lie within the NROD.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. Private alleys with public access easements do not conflict with the Oregon City Comprehensive Plan or ancillary documents. By including alleys in the Concept Development Plan, the proposed development maintains a compact urban form and enhances a vibrant streetscape which demonstrates consistency with Comprehensive Plan Goals 2.1 (Efficient Use of Land) and 2.4 (Neighborhood Livability).

Adjustment #8 - OCMC 16.12.045 Building sites—Minimum density.
Oregon City Municipal Code Chapter 16.12.045 requires subdivision layouts to achieve at least 80% of the maximum lots permitted in the in the net developable area. The applicant requested an adjustment to the standard to facilitate a combination of lots constructed single-family dwellings and multiple family dwellings with open spaces. As there is no minimum lot size in the "MUC-1" Mixed use Corridor District, this standard is only applicable in the "R-3.5" Dwelling District.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. Minimum densities ensure that land is developed efficiently, helping to achieve regional goals for minimizing sprawl by encouraging compact development, where appropriate. As demonstrated below, the proposed development would be constructed with a number of dwelling units which would be permitted if spread throughout the site in the "R-3.5" Dwelling District as well as the "MUC-1" Mixed Use Corridor zoning designation.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development

by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. No impacts are anticipated as the site would be developed to achieve a density permitted if some of the dwellings were located on the MUC-1portion of the site. The adjustment allows the development to be positioned in its proposed location.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. Once all development phases are complete, the development will meet the purpose of the minimum density standard and provide medium-density, affordable housing for Oregon City residents. The proposed residential development incorporates a mix of housing types including single-family detached and attached, "stacked flats," carriage units, and multi-family buildings (Goal 10.1, Policies 10.1.3, 10.1.4). The adjustment allows for development of some for-sale, single-family units as well as a significant number of public affordable (rental) housing units, which is consistent with Goal 10.2, Supply of Affordable Housing.

Adjustment #9 - OCMC 17.16.040.A.1. - Minimum Lot Areas in R-3.5 zone, Residential Uses
Chapter 17.16.040.A.1 of the Oregon City Municipal Code requires a minimum lot size of 3,500 square feet per dwelling unit in the "R-3.5" Dwelling District. The applicant requested an adjustment to reduce the minimum lot size from 3,500 square feet per unit to 1,800 square feet for approximately 27 homeownership units which are identified in Figure 2 as phases 2d, 3b and 4b.

The adjustment would encourage development of affordable for-sale housing by creating smaller lot sizes for the homeownership units which will make them more affordable. Additional affordable housing is needed in Clackamas County according to the County's April 2009 Three-Year Consolidated Plan. In 2000, there were about 869 homeowners without a mortgage that had a cost burden and another 463 with a severe cost burden. There were another 11,883 homeowners with a mortgage that had a cost burden and 5,394 with a severe cost burden. A household experiences a severe cost burden if 50 percent or more of household income is devoted to housing costs. Severely cost burdened homeowners with a mortgage are at risk of homelessness. Also, according to the research, there were approximately 12,915 homeowners in Clackamas County experiencing unmet housing needs. As the population grows over the next 20 years, it is estimated that the number of homeowners with incomes less than 30 percent of median family income through 80 percent of median family income will increase by 19,477 by 2030. Even as early at 2012, there will be some 33,460 homeowners that will have one or more housing problems, consisting of cost burdens, overcrowding, or incomplete kitchen or plumbing facilities.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*

Findings: Complies as Proposed. The minimum lot size provides an overall density minimum density to achieve regional goals for minimizing sprawl by encouraging compact development, where appropriate. As demonstrated below, the proposed development would be constructed with a number of dwelling units which would be permitted if spread throughout the site in the "R-3.5" Dwelling District as well as the "MUC-1" Mixed Use Corridor zoning designation.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. No impacts are anticipated as the site would be developed to achieve a density permitted if some of the dwellings were located on the MUC-1portion of the site. The adjustment allows the development to be positioned in its proposed location. The smaller lot size would be mitigated by reducing the footprint of the dwelling in order to comply with a maximum lot coverage of 55% for structures over 200 square feet. The site layout has been designed around park and open spaces to minimize the impact of the development on nearby neighbors. The applicant undertook a large public outreach campaign to assure the design of the facility would accommodate neighbors concerns.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment would allow for even more compact, efficient single-family residential development on the site (Goal 2.1, Efficient Use of Land). The adjustment encourages development of affordable for-sale housing on the project site, alongside other housing types (Goal 10.1, Policy 10.1.4). Smaller lot sizes for the homeownership units will help make the properties more affordable to potential homebuyers (Goal 10.2). Lastly, the project would redevelop an existing residential site – land committed to residential use will be retained as residential and used for affordable housing (Policy 10.2.1).

Adjustment #10 - OCMC 17.16.040.A.1. - Minimum Lot Areas in R-3.5 zone, Residential Uses
Chapter 17.16.040.A.1 of the Oregon City Municipal Code requires a minimum lot size of 3,500 square feet per dwelling unit in the "R-3.5" Dwelling District. The applicant requested an adjustment to reduce the minimum lot size for all units (other than the homeownership units) from 3,500 square feet to 2,964 square feet. This number is based upon the construction of 283 units in the "R-3.5" Dwelling District.

The relocation of the dwellings from the "MUC-1" to the "R-3.5" is driven by the difficulty in obtaining public funding/financing for mixed-use development. The nature of the funding sources available and associated requirements for funding a project which would have the ECEFWC building with residential units above could severely limit the feasibility of the project. HACC expects that public funding could not be obtained for housing on the "MUC-1" portion of the site in conjunction with the other proposed uses resulting in the removal of the "MUC-1" portion of the site in the Concept (General) Plan.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*

Findings: Complies as Proposed. Minimum lot sizes provide an overall density minimum density to achieve regional goals for minimizing sprawl by encouraging compact development, where appropriate. As demonstrated below, the proposed development would be constructed with a number of dwelling units which would be permitted if spread throughout the site in the "R-3.5" Dwelling District as well as the "MUC-1" Mixed Use Corridor zoning designation.

PROPOSED DEVELOPMENT WITH ON-SITE DENSITY TRANSFER

Tax Lots	Tax Lot 700	Tax Lots 400 & 500	TOTAL FOR SITE
Zoning designation	R-3.5	MUC-1	
Gross Land Area[1]	846,323 sf	81,708 sf	928,031 sf
Onsite Public ROW (Public Access) Area [2]	7,509 sf	2,743 sf	10,252 sf
Net Development Area (i.e. excluding public ROW)	838,814 sf	78,965 sf	917,779 sf
Potential Allowed Development [3]	239 residential units (1 unit per 3,500 sf) 6,000 sf community center/Clackamas Heights property management 200 sf community policing office within multi-family building	44 residential units 2,000 sf retail 14,000 sf ECEFWC	283 residential units 6,000 sf community center/Clackamas Heights property management 200 sf community policing office; within multi-family building 2,000 sf retail 14,000 sf ECEFWC
Proposed development	283 residential units 6,000 sf community center/Clackamas Heights property management 200 sf community policing office within multi-family building	0 residential units 2,000 sf retail 14,000 sf ECEFWC	283 residential units 6,000 sf community center/Clackamas Heights property management 200 sf community policing office; within multi-family building 2,000 sf retail 14,000 sf ECEFWC

[1] Gross land area includes land currently in public right-of-way (on-site streets) that would be vacated.
[2] Additional public rights-of-way will be dedicated along existing abutting public streets: Holcomb, Apperson, Front, and Gain per City street standards. The land to be dedicated is not included in the net development area.
[3] Calculated for Net Development Area.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*

Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development

by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies with Condition. No impacts are anticipated as the site would be developed to achieve a density permitted if some of the dwellings were located on the MUC-1portion of the site. The adjustment allows the development to be positioned in its proposed location. The applicant demonstrated the feasibility of constructing 44 dwelling units in the MUC-1 portion of the General (Concept) Plan area and has proposed to construct the dwellings in the "R-3.5" Dwelling District portion of the site. In order to accomplish this, the applicant proposed an adjustment to reduce the minimum lot size for the units in the "R-3.5" Dwelling District to accommodate the 44 units which are proposed to be constructed in the "R-3.5" portion of the site. The layout of the site has been designed around park and open spaces to minimize the impact of the development on nearby neighbors. Prior to final of building permits for the structure adjacent to Holcomb Boulevard, the applicant shall record a deed restriction on the property prohibiting an addition of a second or third story over the footprint of the original structure unless amended in the Concept (General) Plan. **The applicant can satisfy this standard by complying with Condition of Approval 5.**

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment would allow the applicant to develop more housing on the site due to financing limitations of mixed use developments. The proposal is supported by the comprehensive plan. Goal 10.2 of the Oregon City Comprehensive Plan is, "Provide and maintain an adequate supply of affordable housing." The adjustment would allow for site redevelopment with even more compact, efficient development on the site (Goals 2.1 and 13.1 and Policy 11.1.4) and for development of a diversity of housing types (Policies 10.1.3 and 10.1.4). The adjustment is also supported by Policy 2.1.3: "Encourage sub-area master planning for larger developments or parcels, including redevelopment, where it may be feasible to develop more mixed uses … with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision." The project would redevelop an existing residential site – land committed to residential use will be retained as residential and used for affordable housing (Policy 10.2.1). Policy 10.2.2 of the plan supports the proposed density transfer. It states, "Allow increases in residential density (density bonuses) for housing development that would be affordable to Oregon City residents earning less than 50 percent of the median income for Oregon City."

Adjustment #11 - OCMC 17.16.040.E. - Minimum Required Setbacks in R-3.5 Zone,
Chapter 17.16.040.E of the Oregon City Municipal Code includes setbacks for structures within the "R-3.5" Dwelling District. The applicant has requested an adjustment for the following setbacks:

- An adjustment to reduce the interior side yard setback from 7 feet to 5 feet.
- An adjustment to reduce the corner side yard setback from 10 to 8.

- An adjustment to reduce the garage/accessory structure set back on an alley from 5 feet to 2 feet. The applicant proposed a minimum of 10 feet between buildings.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The applicant assumes that the purpose of the regulations is to provide open space for relaxation and health, and to avoid imposing on adjacent neighbors without landscaping mitigating. The General (Concept) Development Plan includes large, useable areas of common open space/parks, as well as smaller pocket parks, to meet the purpose of the regulations and to maintain a safe distance between neighboring properties. Most importantly, a majority of the development would be multi-family and would require landscaping in the Detailed Development Plan to mitigate the reduced setback.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. A majority of the development would be multi-family and would require landscaping in the Detailed Development Plan to mitigate the reduced setback. In addition, the development includes large, useable areas of common open space/parks, as well as smaller pocket parks, to meet the purpose of the regulations and to maintain a safe distance between neighboring properties.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D. *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment would allow for compact, efficient residential development on the site (Goals 2.1 and 13.1) while preserving open spaces between buildings and meeting minimum building requirements for space between buildings, which aids in fire protection (Goal 11.9).

Adjustment #12 - OCMC 17.29.050.D. - Dimensional standards—MUC-1.
Oregon City Municipal Code Chapter 17.29.050.D requires a minimum interior and rear yard setback of 20 feet plus one foot additional yard setback for every one foot of building height over thirty-five feet for development in MUC-1 which abuts residential. The applicant requested an adjustment OCMC 17.29.050.D to reduce the minimum interior and rear yard setback abutting a residential zone to 10 feet.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The purpose of the regulation is to provide open space and light to neighboring residential properties without towering over them. The Concept Development sets aside large areas of common open space/parks, as well as smaller pocket parks, to meet the purpose of the regulations.

The Concept Development Plan anticipates that the non-residential development on tax lot 400 would not exceed two stories in height, which mitigates impacts of shading and building mass and the proposed ECEFWC use would not create conflicts with adjoining neighbors as it would not operate at night. In addition, landscaping as required in the Oregon City Municipal Code would act as a buffer between the properties.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. Impacts of less open space between individual units would be mitigated by the provision of open spaces and parks elsewhere on the project site and limiting the non-residential uses on the "MUC-1" portion of the site to two stories in height.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment would allow for compact, efficient residential development on the site (Goals 2.1 and 13.1) while preserving open spaces between buildings and meeting minimum building requirements for space between buildings, which aids in fire protection (Goal 11.9). The adjustment would allow development of the MUC-1 portion of the site with non-residential uses allowed in the MUC-1 zone and consistent with the MUC comprehensive plan designation and Plan Goals 2.3, 2.4, 2.5, 9.5, 12.1, and 13.2.

Adjustment #13 - OCMC 17.54.010.3. – Accessory buildings and uses.

The applicant proposed accessory structures consisting of parking/garage for 4 parking automobiles as well as a vestibule and stairway on the first floor and a dwelling unit on the second floor. The applicant has requested the following adjustments:

- An adjustment to OCMC 17.54.010.3 to allow more than one accessory structure per lot.
- An adjustment to OCMC 17.54.010.3.c to allow structures with a footprint of approximately 920 square feet. The structures would cover 4 parking stalls and would be approximately 46 feet by 20 feet.

17.65.070.D.1 *Granting the adjustment will equally or better meet the purpose of the regulation to be modified;*
Findings: Complies as Proposed. The purpose of the regulation is to prevent an accessory structure of over 600 feet from being the dominant structure on a lot. The number of accessory structures with footprints larger than 600 square feet will be fewer than the number of primary structures and the garages/covered parking buildings will serve only the residential uses on the lot and are thus not dominate on the site. The structures will be located adjacent or behind the front of the primary structures.

17.65.070.D.2 *If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;*
Findings: Complies as Proposed. The applicant requested numerous adjustments to redevelop the site with a variety of affordable housing options, parks, open spaces, an efficient transportation system as well as commercial uses that serve future residents and the surrounding neighborhood. The development plan encourages a safe environment and neighbor interactions and mitigates development by limiting the footprint of each of the units and placing the single-family dwellings and open spaces along the property boundaries.

17.65.070.D.3 *City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;*
Findings: Complies as Proposed. As demonstrated within this report, the subject site does not contain historic, archeological or natural resources, and thus the adjustment does not affect any goal 5 resources.

17.65.070.D.4 *Any impacts resulting from the adjustment are mitigated; and*
Findings: Complies as Proposed. As the site will be constructed with various sized dwellings, there is no impact anticipated from the adjustment. The structures will be located adjacent or behind the front of the primary structures.

17.65.070.D.5 *If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.*
Findings: Complies as Proposed. The subject site is not within the Geologic Hazards Overlay District and the applicant received an exemption for the site from the Natural Resources Overlay District. The adjustment would have no effect on environmental resources.

17.65.070.D.6 *The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.*
Findings: Complies as Proposed. The adjustment will allow for efficient development of the site (Goals 2.1 and 13.1 and Policy 11.1.4) and provide a variety of housing types, including carriage units (Goal 10.1, Policies 10.1.3 and 10.1.4). The adjustment will enhance neighborhood livability (Goal 2.4) by providing a more active, vibrant community that encourages neighbor interactions (Policy 2.4.2). The adjustment will also enhance the applicants' ability to maximize the number of affordable housing units on the site (Goal 10.2).

Chapter 17.49 NATURAL RESOURCE OVERLAY DISTRICT

Approximately 1% of the site is mapped within the City of Oregon City Natural Resource Overlay District. All development in the Natural Resource Overlay District is subject to review by the City of Oregon City to ensure adequate protection of a nearby water feature. Oregon City Municipal Code protects the nearby feature by enforcing a vegetated corridor consisting of native plantings along the bank of the stream to improve the water quality and function. This delineation will permit the property owner to develop any portion of the property without additional review of the Natural Resource Overlay District by removing or exempting the site from the development standards in OCMC Chapter 17.49.

The subject site is adjacent to two nearby water features (Exhibit 11). The first water feature is mapped south of the site on the opposing side of Holcomb Boulevard and the second feature is mapped northwest of the site across Apperson Boulevard.

Livesay Creek and an associated wetland are located south of the site on the opposing side of Holcomb Boulevard at the bottom of a significant slope. The size of the associated vegetated corridor that buffers the creek and wetland is dependent on the type of stream and surrounding topography. Anadromous fish-bearing streams have a vegetated corridor extending 200 feet in width, intermittent streams with slopes less than 25 percent and which drain less than 100 acres have a vegetated corridor extending 15 feet in width and all other protected water features have a vegetated corridor width of 50 feet. The vegetated corridor is currently mapped on the subject site. The 1999 Local Wetland Inventory and Riparian Assessment study by Shapiro and Associates (Exhibit 11) did not identify the water feature south as fish-bearing, though did identify a wetland surrounding the water feature. Due to the steep slopes adjacent to the stream and the identification of a wetland, the vegetated corridor is 50-feet from the break in slope adjacent to the stream/wetland. The distance between the subject site and the closest break in the slope associated with the water feature is approximately 55 feet and separated from the feature by Holcomb Boulevard which offers no habitat value. City staff reviewed the vegetation at the top of the slope and concluded that no drainage features on the site, and no watermarks, drift lines, or sediment deposits were apparent. As the distance from the break in slope and the subject site exceeds 50 feet, and the northern portion of the subject site is located outside of the vegetated corridor. Development of the site would not have a negative effect on the water feature/wetland.

A second stream and associated wetland are located northwest of the site on the opposing side of Apperson Boulevard at the bottom of a significant slope. The size of the associated vegetated corridor that buffers the creek and wetland is dependent on the type of stream and surrounding topography. Anadromous fish-bearing streams have a vegetated corridor extending 200 feet in width, intermittent streams with slopes less than 25 percent and which drain less than 100 acres have a vegetated corridor extending 15 feet in width and all other protected water features have a vegetated corridor width of 50 feet. The vegetated corridor is currently mapped on the subject site. The 1999 Local Wetland Inventory and Riparian Assessment study by Shapiro and Associates (Exhibit 11) did not identify the water feature as fish-bearing, though did identify a wetland surrounding the water feature. Due to the steep slopes adjacent to the stream and the identification of a wetland, the vegetated corridor is 50-feet from the break in slope adjacent to the stream/wetland. City staff reviewed the vegetation at the top of the slope and concluded that no drainage features on the site, and no watermarks, drift lines, or sediment deposits were apparent. The NROD buffer extends approximately 8 feet onto the subject site over impervious surfaces. OCMC 17.49.080.I exempts "replacement, additions, alterations and rehabilitation of existing structures, roadways, utilities, etc., where the ground level impervious surface area is not increased". As the entire mapped vegetated corridor extends over impervious surfaces, the southern portion of the subject site is exempt from the standards in OCMC Chapter 17.49. Development of the site would not have a negative effect on the water feature/wetland.

Width of Vegetated Corridor

Protected Water Feature Type (see definitions)	Slope Adjacent to Protected Water Feature	Starting Point for Measurements from Water Feature	Width of Vegetated Corridor
Anadromous fish-bearing streams	Any slope	Edge of bankfull flow	200 feet
Intermittent streams with slopes less than 25 percent and which drain less than 100 acres	< 25 percent	Edge of bankfull flow	15 feet
All other protected water features	< 25 percent	Edge of bankfull flow Delineated edge of Title 3 wetland	50 feet
	≥ 25 percent for 150 feet or more (see Note 2)		200 feet
	≥ 25 percent for less than 150 feet (see Note 2)		Distance from starting point of measurement to top of ravine (break in ≥ 25 percent slope) (See Note 3) plus 50 feet.

Notes:
1. Required width (measured horizontally) of vegetated corridor unless reduced pursuant to the provisions of Section 17.49.050(I).
2. Vegetated corridors in excess of fifty feet apply on steep slopes only in the uphill direction from the protected water feature.
3. Where the protected water feature is confined by a ravine or gully, the top of the ravine is the break in the ≥ 25 percent slope.

Chapter 17.41 – TREE PROTECTION STANDARDS
Finding: Not Applicable. The applicant has conducted and submitted a tree survey for the subject site. As the location and footprint of the structures is subject to changes, compliance with this standard will be reviewed at time of the Detailed Development Plan.

Chapter 12.04 STREETS, SIDEWALKS AND PUBLIC PLACES
Finding: Not Applicable. The applicant submitted documentation displaying the approximate size and location of streets, sidewalk and public places. The applicant requested an adjustment to a section in this Chapter of the Oregon City Municipal Code. Compliance with this Chapter and all adjustments will be reviewed at time of the Detailed Development Plan. The applicant requested an adjustment to this standard. Please review the adjustments portion of this report.

Chapter 12.08 PUBLIC AND STREET TREES
Finding: Not Applicable. Compliance with this Chapter will be reviewed at time of the Detailed Development Plan.

Chapter 17.52 OFF-STREET PARKING AND LOADING
Finding: Not Applicable. Compliance with this Chapter will be reviewed at time of the Detailed Development Plan.

Chapter 17.20 RESIDENTIAL DESIGN STANDARDS
Finding: Not Applicable. The applicant requested an adjustment to a section in this Chapter of the Oregon City Municipal Code. Compliance with this Chapter and all adjustments will be reviewed at time of the Detailed Development Plan.

Chapter 17.54 SUPPLEMENTAL ZONING REGULATIONS AND EXCEPTIONS
Finding: Not Applicable. The applicant requested an adjustment to a section in this Chapter of the Oregon City Municipal Code. Compliance with this Chapter and all adjustments will be reviewed at time of the Detailed Development Plan.

Chapter 17.62 SITE PLAN AND DESIGN REVIEW
Finding: Not Applicable. Compliance with this Chapter will be reviewed at time of the Detailed Development Plan.

Chapter 16.12 MINIMUM IMPROVEMENTS AND DESIGN STANDARDS FOR LAND DIVISIONS
Finding: Not Applicable. Compliance with this Chapter will be reviewed upon submission of a land division application.

Chapter 16.08 SUBDIVISIONS – PROCESSES AND STANDARDS
Finding: Not Applicable. Compliance with this Chapter will be reviewed upon submission of a land division application.

Chapter 16.16 MINOR PARTITONS – PROCESSES AND STANDARDS
Finding: Not Applicable. Compliance with this Chapter will be reviewed upon submission of a land division application.

CONCLUSION AND DECISION:
Based on the analysis and findings as described above, Staff concludes that the proposed General (Concept) Plan (CP 10-02), and Natural Resource Overlay District (WR 10-05) located at Clackamas County Map 2-2E-29AD, Tax Lot 700 and Clackamas County Map 2-2E-29DA, Tax Lots 400 and 500 can meet the requirements of the Oregon City Municipal Code as proposed by the applicant or by complying with the Conditions of Approval provided in this report. Therefore, the Community Development Director recommends the Planning Commission approve files CP 10-02 and WR 10-05 with conditions, based upon the findings and exhibits contained in this staff report.

EXHIBITS:
1. Vicinity Map
2. Applicant's Narrative/Site Plan (On-File)
3. Transportation Study prepared by Green Light Transportation (On File)
4. Comments submitted by Jean Dalton of 13979 Holcomb Boulevard
5. Comments submitted by Nancy Walters, Chair of the Park Place Neighborhood Association
6. Comments submitted by Steven VanHaverbeke, Chair of the Land Use Chair for the Park Place Neighborhood Association
7. Comments submitted by John Replinger, City consultant and transportation engineer for Replinger and Associates
8. Comments submitted by Doug Whiteley, Deputy Fire Marshal at Clackamas County Fire District #1
9. Comments submitted by Mike Conrad, Chief of Police for Oregon City
10. Engineering Policy 00-01 (On-File)
11. NROD Maps and 1999 Local Wetland Inventory and Riparian Assessment by Shapiro and Associates
12. Comments submitted by ODOT, dated August 16, 2010
13. Comments submitted by Nancy Kraushaar

RECOMMENDED CONDITIONS OF APPROVAL
Planning Files: CP 10-02 Concept (General) Development Plan and
WR 10-05: Natural Resource Overlay District Exemption

1. The applicant shall construct this development as proposed in this application and as required by the attached conditions of approval. *(P)*
2. The applicant is responsible for this project's compliance with Engineering Policy 00-01. *(DS)*
3. Future Detailed Development Plan applications associated with the subject site shall comply with the Clackamas County Fire District Comments, dated August 3, 2010. *(P and DS)*
4. Prior to constructing the onsite transportation system, the applicant shall have recorded a public access and utility easement, as approved by the City Development Services and Planning Divisions and accepted by the City Commission, in the approximate locations identified in figure 1 of Exhibit 2. *(P and DS)*
5. Prior to final of building permits for the structure adjacent to Holcomb Boulevard, the applicant shall record a deed restriction on the property prohibiting an addition of a second or third story over the footprint of the original structure unless amended in the Concept (General) Plan. *(P and DS)*

(P) = Verify that condition of approval has been met with the Planning Division.
(DS) = Verify that condition of approval has been met with the Development Services Division.

Exhibit 1

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 2

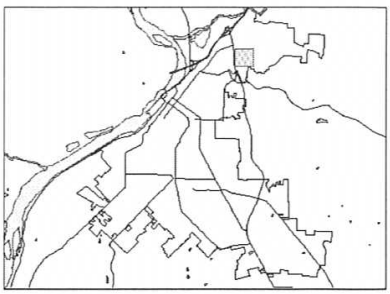
ANTICIPATED PHASING DIAGRAM

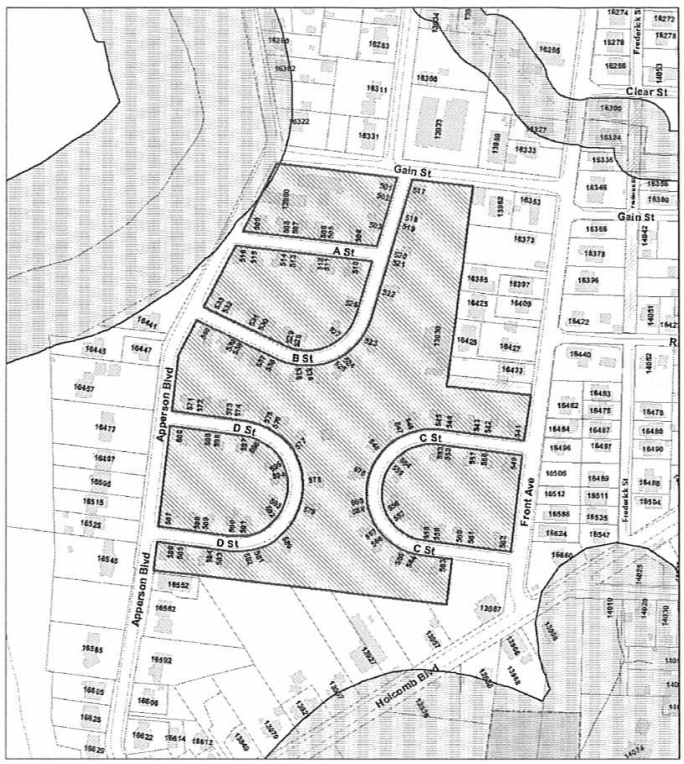
Oregon City Permit Submittal - Property Zoning Report

Printed August 13, 2010

Taxlot: 2-2E-29AD-00700

Site Address: 13900 GAIN ST





Taxlot Information

Taxlot Number: 2-2E-29AD-00700
Alt ID: 560752

Site Address: 13900 GAIN ST
OREGON CITY
OR 97045

Parcel Area (acres - approx): 16.43
Parcel Area (sq. ft. - approx): 715690

Twn/Rng/Sec: 02S 02E 29
Tax Map Reference: 22E29AD

Overlay Information

In Historic District? N
In Willamette Greenway? N
Geologic Hazards (Steep slope)? N
In Nat. Res. Overlay District (NROD)? Y
In 1996 Floodplain? N

Taxpayer Information

Last Name: HOUSING AUTHRTY CO CLACK
First Name:
Address: PO BOX 1510
OREGON CITY
OR 97045

Planning Designations

Zoning: R3.5
- 3,500 SF SFR / 7,000 SF DU

Comprehensive Plan: mr
- Residential - Medium Density

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Park Place NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N

This map is not suitable for survey, engineering, legal, or navigation purposes. Data errors and omissions may exist in map and report.

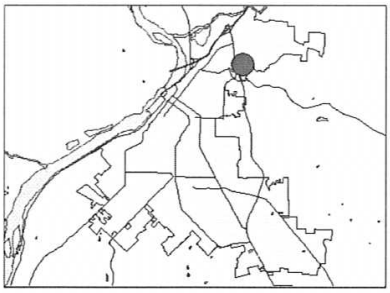
City of Oregon City - PO Box 3040 - 625 Center St - Oregon City, OR 97045
Phone: (503) 657-0891 Fax: (503) 657-7892 Web: www.orcity.org

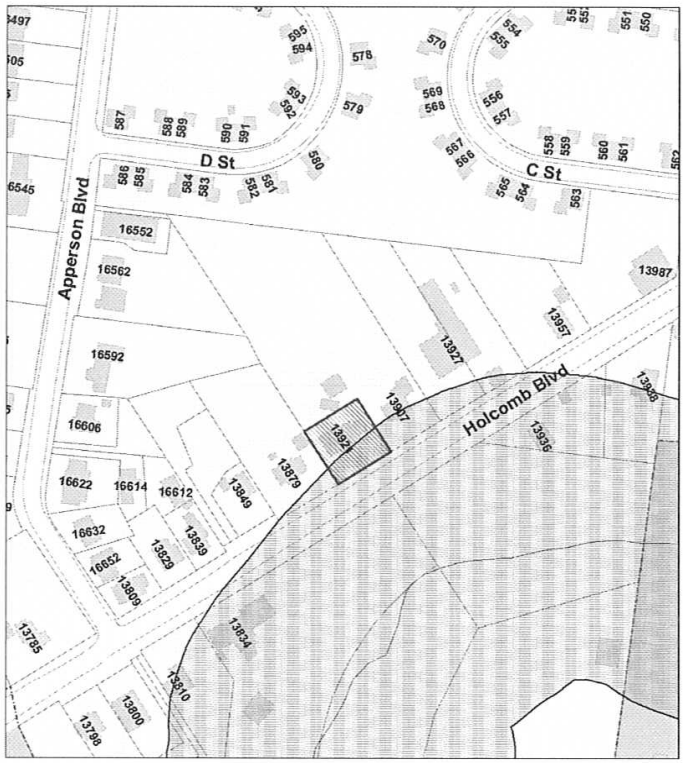
Oregon City Permit Submittal - Property Zoning Report

Printed August 13, 2010

Taxlot: 2-2E-29DA-00500

Site Address: 13921 HOLCOMB BLVD





Taxlot Information

Taxlot Number: 2-2E-29DA-00500
Alt ID: 562563

Site Address: 13921 HOLCOMB BLVD
OREGON CITY
OR 97045

Parcel Area (acres - approx): 0.22
Parcel Area (sq. ft. - approx): 9583

Twn/Rng/Sec: 02S 02E 29
Tax Map Reference: 22E29DA

Overlay Information

In Historic District? N
In Willamette Greenway? N
Geologic Hazards (Steep slope)? N
In Nat. Res. Overlay District (NROD)? Y
In 1996 Floodplain? N

Taxpayer Information

Last Name: MORROW
First Name: STEVEN A & BRENDA E
Address: 13957 HOLCOMB BLVD
OREGON CITY
OR 97045

Planning Designations

Zoning: MUC1
- Mixed Use Corridor

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Park Place NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N

This map is not suitable for survey, engineering, legal, or navigation purposes. Data errors and omissions may exist in map and report.

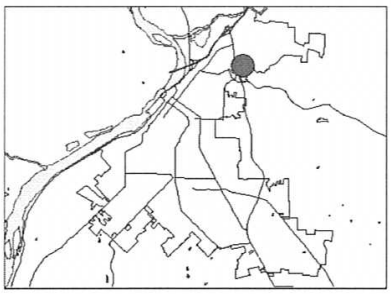
City of Oregon City - PO Box 3040 - 625 Center St - Oregon City, OR 97045
Phone: (503) 657-0891 Fax: (503) 657-7892 Web: www.orcity.org

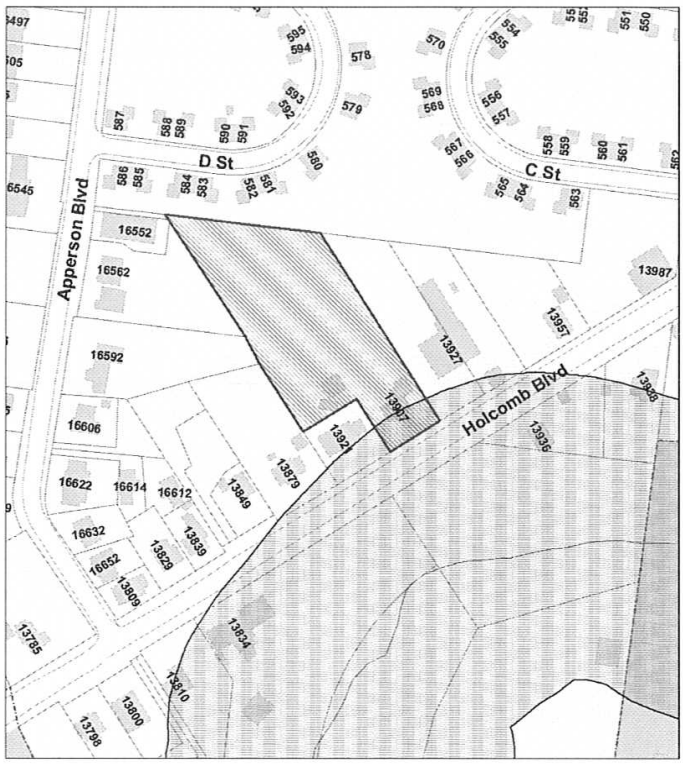
Oregon City Permit Submittal - Property Zoning Report

Printed August 13, 2010

Taxlot: 2-2E-29DA-00400

Site Address: 13907 HOLCOMB BLVD





Taxlot Information

Taxlot Number: 2-2E-29DA-00400
Alt ID: 562554

Site Address: 13907 HOLCOMB BLVD
OREGON CITY
OR 97045

Parcel Area (acres - approx): 1.65
Parcel Area (sq. ft. - approx): 71874

Twn/Rng/Sec: 02S 02E 29
Tax Map Reference: 22E29DA

Overlay Information

In Historic District? N
In Willamette Greenway? N
Geologic Hazards (Steep slope)? N
In Nat. Res. Overlay District (NROD)? Y
In 1996 Floodplain? N

Taxpayer Information

Last Name: MORROW
First Name: STEVEN A & BRENDA E
Address: 13957 HOLCOMB BLVD
OREGON CITY
OR 97045

Planning Designations

Zoning: MUC1
- Mixed Use Corridor

Comprehensive Plan: muc
- Mixed Use - Corridor

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Park Place NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N

This map is not suitable for survey, engineering, legal, or navigation purposes. Data errors and omissions may exist in map and report.

City of Oregon City - PO Box 3040 - 625 Center St - Oregon City, OR 97045
Phone: (503) 657-0891 Fax: (503) 657-7892 Web: www.orcity.org

13879 Holcomb Blvd.
Oregon City, OR 97045

August 9, 2010

Dear Planning Commission of Oregon City;

The CP 10-02 Concept (General) Development Plan, WR 10-05 Natural Resource Overlay District Exemption which you will consider on August 30, 2010 is very flawed. As a neighbor with legal standing (my residence is Map 22E 29 DA 00600), I wish to protest in the strongest terms and urge you not to approve this exemption and master plan .

Some specific objections based on the Oregon City Code of Ordinances (with sections #'s)

12-04: The proposed master plan totally changes the streets- eliminating most all existing streets and creates new, uniform ones out of keeping with the neighborhood. They will require new traffic lights and increase air pollution. These changes are definitely not in the public interest.

12-08, 16-08, 17-49: The creation of so many large dwelling units on so little land will cause a major eyesore and a very crowded neighborhood. It will create an urban area in a rural one. It will inordinately increase water and sewer usage as well as other Oregon City services.

16-12, 16-16, 17-16: The proposed master plan is not an improvement. It is a degradation of historic Park Place. It overloads this area with large dwelling units (especially in areas designated as 2a, 2b, 2c, and 4a) and too many people and creates uniform, very large structures out of keeping with the neighborhood character. It will yield greatly increased traffic, as well as noise, water, air and light pollution. As proposed, the area will definitely have a paucity of public spaces.

17-20, 17-41: The proposed design is poor. There will be large scale destruction of old, mature trees if this exemption is granted and very many fewer trees planted. This may affect the water runoff amount and pattern (are the storm sewers adequate?).

17-52: The greatly increased density proposed by this master plan will create parking problems- especially for the residents of the largest proposed dwelling units and the entire adjacent neighborhood.

17-54: The many exemptions to the zoning regulations in this proposal would not be necessary if the size and density of the dwelling units were greatly reduced and the area allotted to each and to public spaces much increased in keeping with the present character and density in Park Place.

17-62: If the proposed master plan is implemented as presently designed it will have adverse effects on the lives of those in adjacent areas such as myself. There will be a great increase in traffic on Holcomb Blvd. (which is already quite heavy).

17-65: As presented, this master plan requests too many exemptions from the Oregon City Code of Ordinances. It is too sketchy in details to assess all the potential adverse effects and damages to the environment and neighborhood.

In my opinion, this master plan disregards the need to preserve a historic district which was first settled (including where my home now sits) by those who came across the Oregon Trail. Please do not approve this master plan and all its exemptions. **"Clackamas Heights"** will destroy the very character of Park Place. Please send me a copy of your minutes and decisions. Thank-you.

Sincerely yours,

Jean L. Dalton

Exhibit 4

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 27, 2010

IN-HOUSE DISTRIBUTION

- ☒ BUILDING OFFICIAL
- ☒ DEVELOPMENT SERVICES MANAGER
- ☒ PUBLIC WORKS- OPERATIONS
- ☒ CITY ENGINEER/PUBLIC WORKS DIRECTOR
- ☐ TECHNICAL SERVICES (GIS)
- ☒ PARKS MANAGER
- ☐ ADDRESSING
- ☒ POLICE

TRAFFIC ENGINEER

- ☒ JOHN REPLINGER

MAIL-OUT DISTRIBUTION

- ☒ CIC
- ☒ NEIGHBORHOOD ASSOCIATION (N.A.)
- ☒ N.A. LAND USE CHAIR
- ☐ CLACKAMAS COUNTY - JOE MAREK
- ☐ CLACKAMAS COUNTY – KEN KENT
- ☒ FIRE CHIEF
- ☒ ODOT – Division Review
- ☒ SCHOOL DIST 62
- ☐ TRI-MET
- ☐ METRO
- ☐ OREGON CITY POSTMASTER
- ☐ DLCD
- ☐ CITY ATTORNEY
- ☐ OTHER: _____

COMMENTS DUE BY: **Friday, August 13, 2010**
HEARING DATE: Type III – August 30, 2010
HEARING BODY: __Staff Review; **_XX__Planning Commission**; ____City Commission
IN REFERENCE TO:
FILE # & TYPE: CP 10-02 Concept (General) Development Plan and WR 10-05: Natural Resource Overlay District Exemption
PLANNER: Laura Butler, Assistant Planner (503) 496-1553
APPLICANT: Housing Authority of Clackamas County
REQUEST: The Housing Authority of Clackamas County has requested approval for a Concept (General) Development Plan and Natural Resource Overlay District Exemption.
LOCATION: 13900 Gain St., Oregon City, OR 97045, Clackamas County Map 2-2E-29AD, Tax Lot 700
13907 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 400
13921 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 500

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations. **Please check the appropriate spaces below.**

X	The proposal does not conflict with our interests.	_____	The proposal conflicts with our interests for the reasons stated below.
_____	The proposal would not conflict our interests if the changes noted below are included.	_____	The following items are missing and are needed for review:

_____

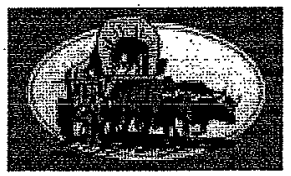
_____

Signed _____

Title CHAIR, PPNA

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERI

Exhibit 5



Park Place Neighborhood Association
The Neighborhood at the End of the Oregon Trail
City of Oregon City, Oregon
parkplaceneighborhood.org

August 13, 2010

TO: Oregon City Planning Commission

RE: CP 10-02 Concept Development Plan
Housing Authority of Clackamas County Clackamas Heights Redevelopment

Park Place Neighborhood Association has actively participated in planning efforts relating to the subject development plan and has submitted a letter of support for the project. The Housing Authority of Clackamas County and its consultants solicited input from residents through a variety of venues and were responsive to neighborhood input and concerns.

While PPNA supports the project we would like to use the opportunity to call attention again to unresolved transportation conditions that continue to affect residents and visitors. While it is expected that the 213 "Jughandle" improvements will alleviate some of the existing traffic problems, the Holcomb-Abernethy/Redland intersection is currently and projected to remain at a Level of Service D.

To look at the transportation issues associated with any proposed development without considering the cumulative impact of all traffic sources on already over-stressed intersections is to repeat the mistakes made in planning Park Place Neighborhood development over the past 10-15 years. Each time a subdivision has been proposed and various traffic studies have been executed, it has been shown that each project – looked at individually – has had little enough impact on overall traffic levels in the neighborhood that approval has been routine. The real impact, however, has been felt by anyone sitting in a stationary line of cars and sitting through multiple signal changes.

We have also seen many more pedestrians on Holcomb Boulevard since the new sidewalk was recently completed. Unfortunately there are no near term plans to extend the sidewalk to Holcomb-Abernethy/Redland. This route has become increasingly more important for residents that rely on bus service who now must walk to the transit center since Tri-Met cut service to the area. The fact that no pedestrian facilities between the neighborhood and downtown Oregon City are being considered for the foreseeable future is most regrettable and demonstrates that neither the money nor the commitment to providing solutions is currently present in either the local, County or State government.

PPNA appreciates HACC's response to on-site transportation considerations and facilitating general neighborhood amenities that will reduce off-site transportation challenges; however, we feel that existing conditions and future proposals continue to put unrealistic and unbearable pressure on the transportation infrastructure in our neighborhood. We urge the City to determine how solutions will be developed as they are not evidently available through the planning process.

Thank you for your consideration.

Nancy Walters, Chair
Tom Geil, Vice Chair
Carter Stein, Secretary
Steve VanHaverbeke, Treasurer

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 27, 2010

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- ☒ DEVELOPMENT SERVICES MANAGER
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TRAFFIC ENGINEER

- ☒ JOHN REPLINGER

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- ☒ FIRE CHIEF
- ☒ ODOT – Division Review
- ☒ SCHOOL DIST 62
- ☐ TRI-MET
- ☐ METRO
- ☐ OREGON CITY POSTMASTER
- ☐ DLCD
- ☐ CITY ATTORNEY
- ☐ OTHER: _____

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COMMENTS DUE BY: **Friday, August 13, 2010**
HEARING DATE: Type III – August 30, 2010
HEARING BODY: __Staff Review; **_XX__Planning Commission**; ____City Commission
IN REFERENCE TO:
FILE # & TYPE: CP 10-02 Concept (General) Development Plan and WR 10-05: Natural Resource Overlay District Exemption
PLANNER: Laura Butler, Assistant Planner (503) 496-1553
APPLICANT: Housing Authority of Clackamas County
REQUEST: The Housing Authority of Clackamas County has requested approval for a Concept (General) Development Plan and Natural Resource Overlay District Exemption.
LOCATION: 13900 Gain St., Oregon City, OR 97045, Clackamas County Map 2-2E-29AD, Tax Lot 700
13907 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 400
13921 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 500

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations. **Please check the appropriate spaces below.**

X	The proposal does not conflict with our interests.	_____	The proposal conflicts with our interests for the reasons stated below.
_____	The proposal would not conflict our interests if the changes noted below are included.	_____	The following items are missing and are needed for review:

Signed Style VanHaverbeke

Title PHNA Land Use Committee Chairman

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Exhibit 6

REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

August 6, 2010

Ms. Laura Butler
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF TRAFFIC IMPACT ANALYSIS – HOUSING AUTHORITY OF CLACKMAS COUNTY – CP10-02

Dear Ms. Butler:

In response to your request, I have reviewed the Traffic Impact Analysis (TIA) in support of the Concept Master Plan for Housing Authority of Clackamas County's (HACC) site on Holcomb Boulevard. The TIA was prepared by Christopher Stanley, PE of Green Light Transportation. The TIA is dated July 10, 2010.

The TIA describes a proposal to redevelop the HACC's site on the north side of Holcomb Boulevard. The site comprises 21.3 acres with approximately 19.3 acres zoned R-3.5 and approximately 1.9 zoned MUC-1. The proposal would result in a mixed use development that includes a mix of residential housing types and uses that support the development and the surrounding neighborhood. The proposal described in the Concept Master Plan and analyzed in the TIA is expected to produce a modest increase in peak hour and daily trips relative to the current development. The development plan has several positive attributes including increased connectivity, improved circulation, a mix of uses that help support the area, and consistency with the Holcomb Boulevard Plan.

Overall

I find the TIA addresses the city's requirements and provides an adequate basis to evaluate impacts of the proposed development. It provides information to assess the proposal for amendments sought as part of the Concept Master Plan. Some issues will need further attention in the Detailed Development Plan.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. It includes an analysis of the following intersections:

    - Abernethy Road/Washington Street
    - Redland Road/Abernethy Road/Holcomb Boulevard
    - Anchor Way/Redland Road

Exhibit 7

- Washington Street/Clackamas River Drive/Highway 213
- Redland Road/Highway 213
- Front Avenue/Holcomb Boulevard

In addition the following site access locations and internal street intersections were analyzed:

- Apperson Boulevard/Proposed Columbine Street
- Apperson Boulevard/Proposed Rose Street
- Apperson Boulevard/Proposed Rock Street
- Gain Street/Harley Street
- Gain Street Driveway
- Front Avenue/Proposed Rose Street
- Front Avenue/Proposed Columbine Street
- Holcomb Boulevard Driveway

2. ***Traffic Counts.*** The traffic counts were conducted in March 2010 and appear reasonable. Additional observations were conducted of the traffic progression and queuing particularly on Highway 213. These observations were used in the analysis of traffic operations under existing conditions.

3. ***Trip Generation.*** The TIA provides a detailed analysis of trip generation. The TIA accounts for the uses proposed on the site, including the following:

- 285 residential units
- 4,000 square foot community center
- 2,000 square foot HACC property management offices
- 200 square foot office for community policing
- 14,000 square foot for Early Childhood Education and Family Wellness Center (ECEFWC) – childcare
- 2,000 square foot neighborhood retail space

Some adjustments were made to account for the unique aspects of the proposed development. The adjustments include a reduction in trip generation rate for the residential units that accounts for lower automobile ownership associated with lower income households and a lower rate based on the ability to walk to neighborhood businesses and services. The rationale provided for these adjustments was well presented and seems appropriate in this particular case.

Trip generation rates were provided for both the AM and PM peak periods. Reductions for pass-by trips were accounted for in the calculations for the small retail component. Because the site has existing development, the analysis focused on the net change in trips to and from the site due to the change in use. The net increase was calculated to be 150

new primary trips and 10 new pass-by trips during the AM peak hour and was calculated to be 184 new primary trips and 8 new pass-by trips during the PM peak hour. The calculations account for the changes.

4. ***Trip Distribution.*** The trip distribution is based on existing patterns and assumptions based on the land uses of the surrounding area and the location within the region. Approximately 40 percent of the trips are assumed to be destined for the immediate vicinity. The remaining trips are distributed to major corridors including I-205 in both directions, toward downtown, east on Holcomb Boulevard and to the south on Highway 213. The trip distribution patterns shown and the rationale for them appear reasonable.

5. ***Traffic Growth.*** The TIA provides for annual background traffic growth of 1.0 percent for six years to account for general traffic growth through year 2016. Traffic from adopted Master Plans has also has been taken into account. The assumptions and methodology appear reasonable.

6. ***Analysis.*** Traffic volumes were calculated for the intersections cited in #1, above, for both the AM and PM peak hours. Intersection level-of-service (LOS), volume-to-capacity (V/C) ratio, and delay calculations were provided. The analysis was conducted for existing conditions, 2016 background conditions, and year 2016 with the proposed development as proposed in the Concept Master Plan.

   The engineer indicates that the intersection of Highway 213/Washington Street currently exceeds capacity resulting in long queues, particularly during the AM peak period, and that these disrupt operations at the Redland Road intersection. The analyses for year 2016 assume that the "Jug Handle" improvement project in this section of Highway 213 will be in place. With this project, the operations are calculated to meet operational standards and queuing will be within allowable limits allowing improved operations in the corridor.

   The engineer calculates that other study area intersections will operate in year 2016 with performance similar to existing conditions. Queuing at study area intersections are also calculated to fall within allowable limits. The analysis of the site access points and internal site intersections also indicate acceptable operations and short queues.

   The engineer concludes that with the "Jug Handle" project, all study area intersections and site access points operate at an acceptable level of service. No mitigation is recommended. I concur.

7. ***Turn Lanes.*** The analysis did not include a specific analysis of a center left-turn lane at the site access points on Holcomb Boulevard. The Holcomb Boulevard Plan calls for a center turn lane in this section so a detailed analysis is not required. Frontage improvements can be verified with the Detailed Development Plan or site plan review.

8. ***Crash Information.*** The TIA provides information on crashes. The key intersections were shown to have low to modest crash rates. Only two crashes, both rear-end crashes, were reported on Holcomb Boulevard between Apperson Boulevard and Front Avenue during a three-year period. There is little reason to believe the new development will cause a significant safety problem at any of these locations.

9. ***Pedestrian and Bicycle Facilities.*** The proposed development's new internal street network and changes in access locations will provide much greater pedestrian and bicycle access and connectivity. The materials indicate the internal streets will be private streets but will be built to city standards that include sidewalks. The Holcomb Boulevard plan calls for on-street bike lanes. Details can be verified during site plan review.

10. ***Site Plan and Access.*** The site plan provides multiple site accesses. New intersections will be created on Apperson Boulevard and on Holcomb Boulevard. Each was analyzed for traffic operations, queuing and sight distance. The Concept Master Plan's layout and accesses provide for far better connectivity than does the current development.

    The applicant proposes adjustments to the access spacing standards along Holcomb Boulevard and along Front Avenue.

    Holcomb Boulevard is a minor arterial street, which normally requires a 150-foot spacing standard. The applicant proposes access spacing of approximately 140 feet between the proposed retail parking lot access/driveway along Holcomb Boulevard and the proposed street connecting to Holcomb Boulevard. The Concept Development Plan separates the driveway from the proposed street as much as possible while still meeting design standards for the parking lot driveway and the proposed street; however, access spacing is limited by the length of site frontage along Holcomb Boulevard. One problem identified in the TIA is that if all parking spaces in this lot are occupied, a vehicle entering the lot would have no options for exiting other than backing onto Holcomb Boulevard. This would not be an acceptable design. The spacing proposed by the applicant is acceptable, but the lack of an alternative route for exiting the parking lot serving the lot is unacceptable. The lack of an alternative access for this parking lot can be remedied in the Detailed Development Plan.

    The access spacing is approximately 60 feet between the existing western driveway to Steve's Select Market and the proposed street connecting to Holcomb Boulevard. The site's frontage on Holcomb Boulevard is less than 200 feet and the proposed street runs along the eastern edge of the site to allow development on the remainder of the parcel. As noted in the Traffic Impact Study, traffic volumes at both accesses are low. This change in access spacing is acceptable due to the site's constraints.

11. ***Intersection Spacing.*** To achieve the high densities and the mix of uses proposed in this Concept Master Plan, the plan proposes closer intersection spacing than prescribed. The applicant proposes lesser intersection spacing as part of the adjustments.

The applicant proposes an adjustment to the intersection spacing standards for the intersection of proposed Columbine Street (local) and Holcomb Boulevard (minor arterial) as measured along Front Avenue (collector). The applicant has requested a 145 feet spacing between the intersections instead of the 300-foot spacing required in OCMC Table 12.04.040, and the 400 foot spacing required by Oregon City Transportation System Plan (TSP) between a local street and a minor arterial.

OCMC 12.04.040 states "a lesser distance between intersections may be allowed, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the reduction in intersection spacing will not pose a safety hazard." Columbine Street would be located in the same location as the existing southern intersection of C Street and Front Avenue. The diagonal configuration of Holcomb Boulevard through the rectangular street grid makes it infeasible to meet the spacing standards for proposed Columbine Street on both the east and west sides of the project site. Following the rectangular street grid, it is not feasible to connect Columbine Street through the site and meet the intersection spacing standards for the intersections of Columbine/Front and Holcomb/Front. The applicant noted that providing two east-west connections through the project site is more important to providing an efficient, safe transportation system than meeting the intersection spacing standard on Front Street.

12. ***Sight Distance.*** The engineer reports that adequate sight distance can be achieved at all the new intersections and site access points. The engineer recommends paying attention to vegetation and other design features that could disrupt sight distance. Further measurements and verification can be conducted as part of site plan review.

13. ***Consistency with the TSP.*** The site frontage improvements along Holcomb Boulevard will need to comply with the collector standards from the TSP and Holcomb Boulevard Plan.

14. ***Conclusions and Recommendations.*** The engineer concludes that mitigation is not required to accommodate the development. He recommends changes in the retail establishment's parking lot access, circulation and/or capacity to avoid impacts to traffic on Holcomb Boulevard. He further recommends shared or cross-over easements along the Holcomb Boulevard frontage to reduce traffic conflicts and enhance future development. Finally, he recommends landscaping treatments that minimize the occurrence of sight distance issue along the frontages. I concur with these recommendations.

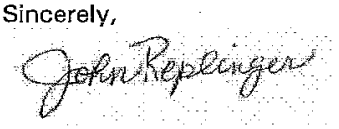
Conclusion and Recommendations

I find the TIA meets City requirements. The TIA indicates that development will cause modest increases in traffic but the existing system plus planned improvements can accommodated it. The applicant proposes modification of the intersection and access spacing standards to help achieve desired densities. The key issue of concern raised by the applicant's traffic engineer, and which I share, relates to the parking lot serving the neighborhood commercial

establishment. Its small size, layout, and lack of an alternative access raise a potential safety problem. If all spaces are occupied, a motorist entering the lot would have no safe alternative for exiting the lot. This can be remedied at the Detailed Development Plan or site plan review stages

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,



John Replinger, PE
Principal

Oregon City\2010\CP10-02.docx

Laura Butler

From: replinger-associates@comcast.net
Sent: Wednesday, August 11, 2010 4:09 PM
To: Laura Butler
Subject: Re: Clackamas County Housing Authority

Laura:

As I understand the proposal for right-of-way width of 64 feet on certain streets is to allow greater width for plantings and bioswales between the sidewalk and curb and to allow parking on both sides of the street. Allowing flexibility for wider planting areas also benefits pedestrians by moving them further from traffic. Allowing parking on both sides of the street tends to slow traffic on these streets and provides an additional buffer between the moving traffic and pedestrians. I see no objection to the wider rights-of-way from a traffic standpoint.

A street width of 26.5 feet with parking on both sides still allows for a travel lane of 10.5 to 12 feet depending on the width of the parking lanes. Numerous cities have accepted narrower street widths in this range. They are often known as "queuing streets" since vehicles must queue or take turns moving into unused parking spaces for oncoming traffic. The effect is a definite slowing of traffic on the street. Many older neighborhoods in Portland have streets of this width and work acceptably or even well. The most usual objection to use of streets of this width comes from the emergency service providers who are concerned about their ability to operate firetrucks and hook up hoses in such areas. From a traffic operations standpoint, I think narrow streets for short distances as proposed here are acceptable.

I hope this helps. Please let me know if you have further questions.

John Replinger, PE
Replinger & Associates LLC
6330 SE 36th Avenue
Portland, OR 97202
503-719-3383
replinger-associates@comcast.net

----- Original Message -----
From: "Laura Butler" <lbutler@ci.oregon-city.or.us>
To: replinger-associates@comcast.net
Sent: Wednesday, August 11, 2010 9:29:24 AM
Subject: Clackamas County Housing Authority

John,
Can you send me comments on the following two adjustments the applicant has requested? One or two sentences would be great. Thank you and I hope your family is having a great time on the road!

- An adjustment has been proposed for the streets identified below which exceed the maximum right-of-way width.

- The right-of-way (in this case public access and utility easement) width for the street connecting Columbine Street and Holcomb Boulevard, as well as Columbine and Harley streets, are proposed to be 64 feet wide, which exceeds the maximum right-of-way standard of 54 feet in Table 12.04.020. The wider easement is proposed to provide sidewalks and generous planting strips/bioswales for stormwater infiltration.
- The right-of-way (in this case public access and utility easement) width for Rock and Rose streets are proposed to be 56 feet in width, exceeding the maximum right-of-way width of 54 feet.

o The applicant submitted a street design plan with a pavement width of 26.5 feet with one travel lane and parking on both sides for proposed local Rock and Rose Street.

Laura Butler, AICP
Planner
Planning Division
PO Box 3040
221 Molalla Avenue, Suite 200
Oregon City, Oregon 97045
Phone: 503.496.1553
Fax: 503.722.3880
lbutler@orcity.org

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Online Mapping is available at OCWebMaps

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REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

August 20, 2010

Ms. Laura Butler
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF ODOT COMMENTS ON TRAFFIC IMPACT ANALYSIS – HOUSING AUTHORITY OF CLACKMAS COUNTY – CP10-02

Dear Ms. Butler:

In response to your request, I have reviewed the comments submitted by the Oregon Department of Transportation (ODOT) related to the Traffic Impact Analysis (TIA) in support of the Concept Master Plan for Housing Authority of Clackamas County's (HACC). The ODOT comments were provided in a letter from Gail Curtis dated August 16, 2010 and a memorandum by Avi Tayar, PE dated August 15, 2010. The TIA, dated July 10, 2010, was prepared by Christopher Stanley, PE of Green Light Transportation.

Mr. Tayar points out that the TIA does not follow ODOT's specified methodology in certain technical areas. He specifically identifies a failure to adjust traffic volumes to account for seasonal factors and the engineer's use of a peak hour factor of 1.0. As Mr. Tayar points out, using ODOT's methodology for seasonal adjustment will boost the background traffic volumes and cause the volume-to-capacity (v/c) ratio to be higher than calculated. He also points out that the use of a different peak hour factor will also cause the v/c ratio to be higher than calculated. Both are valid conclusions.

ODOT's methodology has a sound technical basis and is based on statewide data. Its application is prescribed in ODOT documents. One should also note that the ODOT methodology takes a very conservative approach for a variety of technical reasons.

Mr. Tayar also identifies an issue related to pass-by trips, but I was unable to identify a problem with the TIA methodology based on his citation.

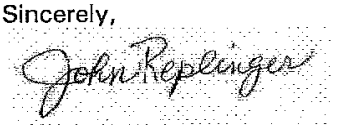
Mr. Tayar does not request that the analysis be redone, but focuses on the need for improvements to the intersection of Highway 213 and Redland Road, a project that is recognized as being needed, but which is not fully funded.

The development is calculated to add some additional traffic to the intersection of Highway 213 and Redland Road, but the increase is very small. During the PM peak hour, for example, the increased volume associated with the development proposal is 46 trips (total for all approaches) as compared with a total PM peak hour entering volume of over 5,600. I am

uncertain whether the amount of traffic being added to this intersection from the proposed development is sufficient to warrant the specific application of a fee to help implement the project.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,



John Replinger, PE
Principal

Oregon City\2010\CP10-02a2.docx

Clackamas Fire District #1
Fire Prevention Office

Fax Memorandum

To: Laura Butler, City of Oregon City Planning Dept. / Bob Cullison, City of Oregon City Engineering Manager

From: Doug Whiteley, Deputy Fire Marshal, Clackamas Fire District #1

Date: 8/13/2010

Re: Clackamas Heights

This review is based upon the current version of the Oregon Fire Code (OFC), as adopted by the Oregon State Fire Marshal's Office. The scope of review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC requirements. The following items should be addressed by the applicant:

Apparatus Access

1. **All inside turning radii that are part of required fire apparatus access way to be minimum of 28'. This also applies to the alley access off of Gain St. if intended to be used as part of required fire apparatus access.**
2. **Provide parking restrictions on both sides of private access drives/alleys that are part of required apparatus access. For parking restrictions, provide either "No Parking Fire Lane" signs or paint applicable curbs red with white lettering to say "No Parking Fire Lane". (The first 150' on the 2 drives off of Columbine St., 1 drive off of Harley St., and the alley off of Gain St.)**
3. **Provide parking restrictions for narrow portion 32' roadways with same standard as #2. This refers to narrowed areas where roads "T" into the 32' road.**
4. **All portions of new construction are to be within 150' of approved fire apparatus access roadway. Buildings that do not comply are 45, 46, 47, 48, 62, and 63. May provide fire sprinklers in lieu of this requirement.**
   The alley between Gain St. and Rose St. is considered a dead end road since Rose St. is not part of the approved fire apparatus access route. Due to this, fire apparatus access will end 150' into the noted alley. If not using the alley as fire apparatus, building #44 does not comply with #4 above.
5. **Please note on plans that there will not be fences installed separating buildings per our previous conversations. The installation of fences will alter fire accessibility.**

Water Supply

1. **Average hydrant spacing for project to be minimum of 500' on required fire apparatus roadways.**
2. **All portions on new construction to be within 600' of a fire hydrant via approved fire apparatus access route.**

Exhibit 8

2930 S.E. Oak Grove Blvd. • Milwaukie, OR 97267 • 5

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 27, 2010

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TRAFFIC ENGINEER

- ☒ JOHN REPLINGER

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- ☐ CLACKAMAS COUNTY - JOE MAREK
- ☐ CLACKAMAS COUNTY – KEN KENT
- ☒ FIRE CHIEF
- ☒ ODOT – Division Review
- ☒ SCHOOL DIST 62
- ☐ TRI-MET
- ☐ METRO
- ☐ OREGON CITY POSTMASTER
- ☐ DLCD
- ☐ CITY ATTORNEY
- ☐ OTHER: _____

COMMENTS DUE BY: **Friday, August 13, 2010**
HEARING DATE: Type III – August 30, 2010
HEARING BODY: __Staff Review; **_XX__Planning Commission;** ____City Commission
IN REFERENCE TO:
FILE # & TYPE: CP 10-02 Concept (General) Development Plan and WR 10-05: Natural Resource Overlay District Exemption
PLANNER: Laura Butler, Assistant Planner (503) 496-1553
APPLICANT: Housing Authority of Clackamas County
REQUEST: The Housing Authority of Clackamas County has requested approval for a Concept (General) Development Plan and Natural Resource Overlay District Exemption.
LOCATION: 13900 Gain St., Oregon City, OR 97045, Clackamas County Map 2-2E-29AD, Tax Lot 700
13907 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 400
13921 Holcomb Blvd., Oregon City, OR 97045, Clackamas County Map 2-2E-29DA, Tax Lot 500

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and ensure prompt consideration of your recommendations. **Please check the appropriate spaces below.**

_____	The proposal does not conflict with our interests.	✓	The proposal conflicts with our interests for the reasons stated below.
_____	The proposal would not conflict our interests if the changes noted below are included.	_____	The following items are missing and are needed for review:

THE ADDITION OF ALMOST 300 LOW INCOME HOUSING UNITS WILL PLACE AN EVEN GREATER STRAIN ON AN UNDERSTAFFED POLICE DEPT.

Signed M C

Title CHIEF OF POLICE

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WIT

Exhibit 9

NROD & Wetlands
Cleveland St
Clear St
Gain St
Rock St
Jacobs Way
Holcomb Blvd
Apperson Blvd
Front Ave
Hwy 213
Hiram Ave
Frederick St
A St
B St
C St
D St
Livesay Rd
N
S
E
W
OREGON CITY
City of Oregon City
P.O. Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
www.orcity.org
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Map created with OCMap 2010
08/11/2010

Exhibit 11

Oregon City
Public Works
Gain St
A St
B St
C St
D St
Apperson Blvd
16280
16283
16302
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OREGON CITY
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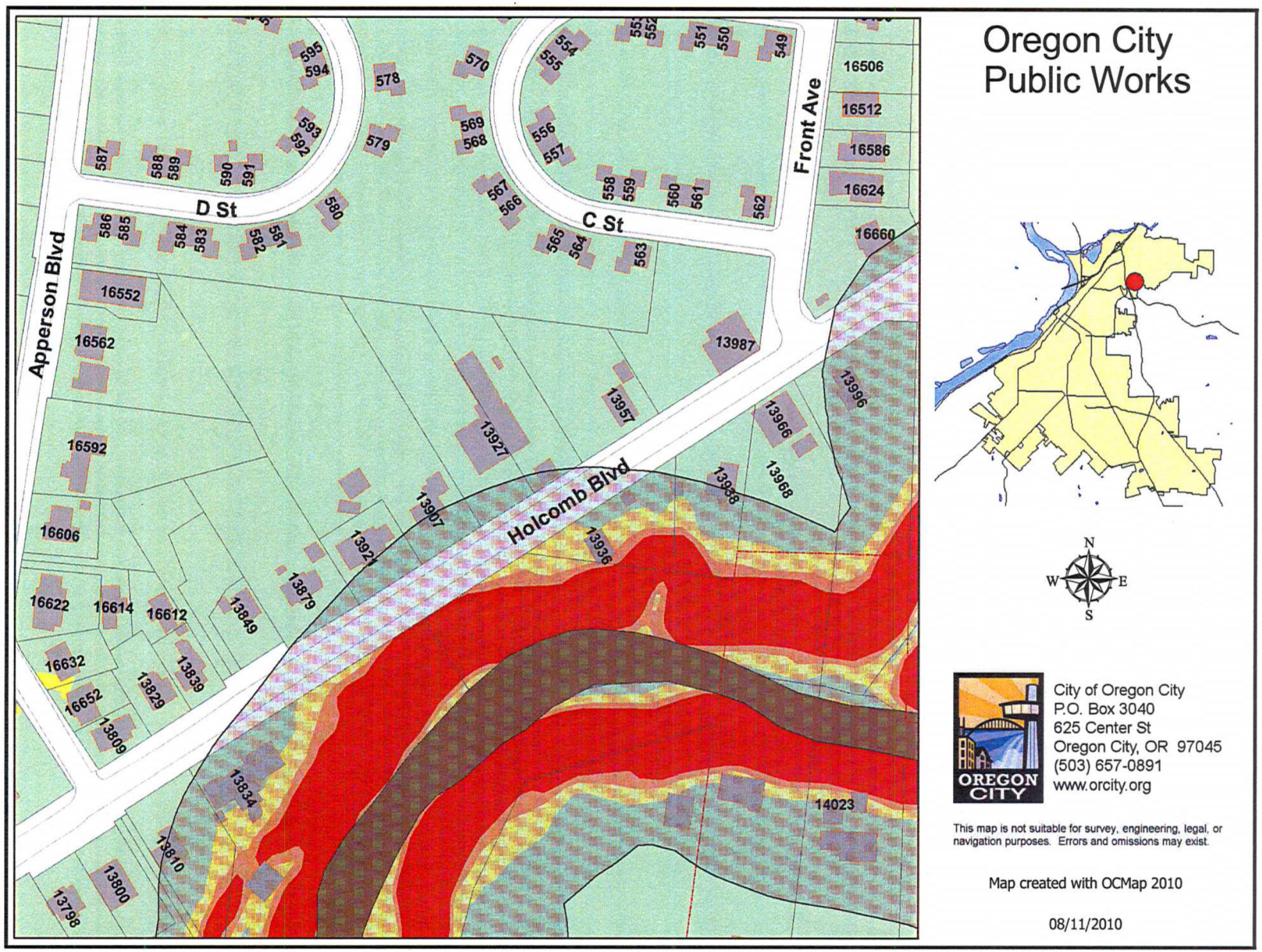
Oregon City
Public Works
D St
C St
Front Ave
Apperson Blvd
Holcomb Blvd
16506
16512
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16624
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16552
16562
16592
16606
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16614
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Map created with OCMap 2010
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Holcomb Blvd
13987
13927
13907
13921
13833
13831
Oregon City
Public Works
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W
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S
OREGON CITY
City of Oregon City
P.O. Box 3040
625 Center St
Oregon City, OR 97045
(503) 657-0891
www.orcity.org
This map is not suitable for survey, engineering, legal, or navigation purposes. Errors and omissions may exist.
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Oregon City
Public Works
Gain St
A St
B St
6300
6311
6322
6331
13935
13900
501
502
517
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OREGON CITY
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Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209
Telephone (503)731-8200
FAX (503)731-8259

Oregon
Theodore R. Kulongoski, Governor

August 16, 2010

File code: PLA9-2B-OR213
ODOT Case No:3883

Laura Butler, City Planner
Planning Department
City of Oregon City
PO Box 3040
Oregon City, OR 97045-0304

RE: **CP 10-02; WR 10-05 Clackamas Heights Development Plan**

Dear Ms. Butler,

ODOT participated in the pre-application conference and has reviewed the formal land sue application. Our specific comments regarding our review of the traffic impact analysis (TIA) are attached.

In summary, we do not agree with the TIA's conclusion that the proposed redevelopment does not impact the operation and safety conditions of the surrounding street network and ODOT facility. The impacted ODOT facility is OR 213 which is classified as a district highway/Expressway. We have however, identified mitigation that can make the proposal acceptable. We recommended that a share of the system development charges (SDC) for the site redevelopment be appropriated to Phase 2 of the OR 213: I-205 Redland Road O'Xing project. The need for the Phase 2 project has been identified but the funding is currently insufficient. With this provision as part of the decision, ODOT has no objection to the proposal.

Thank you for providing ODOT the opportunity to participate in this application completeness review. **Please send a copy of the Notice of the formal application to: ODOT Region 1 Planning, Development Review.**

If you have any questions please feel free to contact me at 503.731.8206.

Sincerely,

Gail Curtis, AICP, Senior Planner

Attach: ODOT review of traffic analysis

c: Avi Tayar, ODOT Region 1 Traffic

Exhibit 12

Oregon
Theodore R. Kulongoski, Governor

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209 - 4037
Telephone (503) 731-8200
FAX (503) 731-8259

TO: Gail Curtis – Senior Planner
Region 1 Planning

FROM: Avi Tayar, P.E.
Development Review Team Leader
Region 1 Traffic

DATE: August 15, 2010

RE: Clackamas Heights Master Plan
OR 213 (Cascade Highway North)
Oregon City, OREON

I have reviewed the Transportation Impact Analysis (TIA) for the proposed Clackamas Heights Master Plan Oregon City, Oregon. The TIA is dated July 15, 2010 and was prepared by Christopher Stanley, P.E. of Green Light Transportation.

Introduction
The proposal is for redevelopment of the Housing Authority of Clackamas County's (HACC) Clackamas Heights public housing development in Oregon City, Oregon. The project includes 21.3 acres north of Holcomb Boulevard and is bound by Appreson Boulevard on the west, Gain St on the north and front Avenue on the east. The site is currently developed with 100 residential duplexes and the HACC administrative offices, maintenance facilities, and a community room. Redevelopment of Clackamas Heights is expected to include a mix of residential housing and uses to support the project and surrounding neighborhoods. Full build out and occupancy is contingent upon funding, but forecast for 2016.

The site is located within the vicinity of I-205 to Redland Road Project intersection that the City is developing for the OR 213/Washington Street intersection. The study intersections include OR 213/Washington Street and OR 213/Redland Dr. Access to the proposed redevelopment site is provided by local street connections and driveways. Highway OR 213 is classified as a district highway with a posted speed of 45-55 mph. According to the Oregon Highway Plan the Maximum volume to capacity (v/c) ratio for the local road intersecting OR Hwy 213 is 0.99. The effected intersections are Hwy 213 at Washington Street and at Redland Drive.

Traffic Study Analysis Methodology
As indicated in ODOT's letter dated March 18, 2010 and in ODOT's Analysis Procedures Manual, all traffic volumes must be seasonally adjusted to represent 30th Highest Hour Volumes (30HV) for Current year and Build Out "background traffic"

conditions. According to the TIA, it is stated that the traffic counts used (March 2010) are comparable to traffic counts that were collected in November 2009 at the Redland Road/OR 213 intersection, and since both counts show similar volumes it confirms that the March counts do not require seasonal adjustment for design hour volumes. ODOT's Seasonal Trend Table for a commuter confirms that both months do show comparable volumes, but the highest volume month is exhibited during the summer months (July or August). ODOT's Analysis Procedure Manual for commuter requires an adjustment of 9 percent to the traffic volume when counts are collected in March in order to establish the 30th highest hour volume.

In addition, Peak hour factor (PHF) are required to be used when study intersections are analyzed using the Highway Capacity Manual (HCM) 2000. In the TIA, the reported count PHF was used for local street intersection only while a PHF factor of one was used for the OR 213 intersections. Using the correct PHF will affect the volume to capacity ratio, the standard used to measure traffic impacts at highway intersections.

Trip Generation

According to the TIA, the trip generation estimates for the proposed redevelopment are based on the standard reference manual Trip Generation (ITE, 7th Edition, 2003). The ITE 8th Edition is the most recent guidance document used for estimating trip generation. The trip generation rates for the listed uses are slightly higher in the 8th Edition than the 7th addition. Table 4 of the TIA presents the pass by trips for the Neighborhood Retail uses at a rate of almost 75%. However, the pass-by trips are based on the ITE trip Generation Handbook (2nd Edition, June 2004) indicates that approximately 43% of the trips for a retail facility are pass-by.

Traffic Safety

ODOT and Oregon City are both involved in the process of implementing the Phase 1 of the OR Hwy 213/I-205 interchange project which is funded and scheduled to begin in 2011. The project was design to address all operational and safety-related deficiencies identified for the I-205 Northbound ramp terminals and the signalized intersection at Washington Street. Although not currently funded, Phase 2 of the project would address existing operational, safety and mobility issues at the OR 213/Redland Rd intersection. Once the project is completed mobility and safety are expected to be restored.

Conclusion

The TIA's findings that the proposed redevelopment does not impact the operation and safety conditions of the surrounding street network and ODOT facility are based on analysis that was inconsistent with ODOT methodology. Analysis performed consistent with ODOT methodology including adjustment for seasonal trend factor and traffic volume Peak Hour factor would result in higher background traffic volumes and any additional trip generation is likely to exceed mobility standards at the OR 213/Redland Rd intersection. Recent traffic studies for development in the area prepared consistent with ODOT methodology show that this intersection operates close to capacity. Therefore, background traffic volumes in 2016 without redevelopment related trips would exceed the mobility standard. Additional traffic generated by the redevelopment is anticipated to further degrade the mobility and operation of the intersection.

Although currently unfunded, Phase 2 of the OR 213: I-205- Redland Road O'Xing project would provide additional capacity and improve intersection operations and safety. Therefore, it is recommended that a share of the system development charges related to the redevelopment be appropriated to Phase 2 of the OR 213: I-205 Redland Road O'Xing project.

If there are any questions regarding the contents of this memorandum, please contact me at (503) 731-8221.

Laura Terway

From: Nancy Kraushaar
Sent: Monday, August 16, 2010 10:30 PM
To: Laura Butler; Bob Cullison
Cc: Tony Konkol
Subject: RE: ODOT comments on Clackamas Heights

Laura and Bob:

I have a few questions and comments:

1) How much additional traffic is expected to be generated by the HACC redevelopment? How many more units or other new uses?
2) This is a development type that may have less trip generation due to use of public transportation to which the City is supportive of increasing access (if TriMet can provide).
3) Please note that we cannot earmark SDCs for particular projects.
4) We have included a 20% local (match) funding component for state roads listed in our TSP CIP in our SDC methodology and calculation.

As far as I know, ODOT does not have the authority to dictate our SDC program. And, I believe we are one of the first cities to have included a portion of state highways in our SDC calculation.

-Nancy

From: Laura Butler
Sent: Monday, August 16, 2010 2:57 PM
To: Bob Cullison
Cc: Nancy Kraushaar
Subject: FW: ODOT comments on Clackamas Heights
Importance: High

Bob,
Please see Gail's comments regarding the HACC and her recommendation that a share of the system development charges related to the redevelopment be appropriated to Phase 2 of the OR 213: I-205 Redland Road O'Xing project.

From: CURTIS Gail E [mailto:Gail.E.CURTIS@odot.state.or.us]
Sent: Monday, August 16, 2010 2:45 PM
To: Laura Butler
Subject: ODOT comments on Clackamas Heights
Importance: High

Hi Laura,

Here is the traffic section's letter to me as an FYI.

I wanted to get it to you so you know that the upshot is we are asking that SDC's be collected and applied to OR 213 as a way of mitigating the impacts.

Exhibit 13

CLACKAMAS HEIGHTS MASTER PLAN

CONCEPT DEVELOPMENT PLAN

Concept Development Plan Submittal

July 26, 2010

Prepared for:

The City of Oregon City
221 Molalla Ave, Suite 200
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Oregon City Or 97045
Phone: (503) 496-1564

Prepared on behalf of the Applicants:

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Steve Morrow
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Phone: (503) 781-2159

Prepared by:

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Communitas
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Phone: (503) 358-3404

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Letter from State Historic Preservation Officer (SHPO)
Letter (email) regarding Tribal Review
Public Participation Plan
Public Meetings Record
Letters of Support, including list of residents who submitted postcards
Park Place Neighborhood Association Meeting Notes and Sign-in Sheet
Title Report, Clackamas Heights (Tax Lot 700 on Assessor's Map 2S2E29AD)
Title Report, Morrow Parcels (Tax Lots 400 and 500 on Assessor's Map 2S2E29DA)

Under Separate Cover

Traffic Impact Study

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G0.00 Cover Sheet

Existing Conditions

A0.01 Existing Vicinity Map
A0.02 Existing Natural Resources Plan
C0.1 Zoning and Existing Lot Size Plan
C0.2 Existing Streets and Easements Plan
C0.3 Existing Site Topography Plan
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C3.1 Proposed Storm Drainage Concept Plan
C3.2 Proposed Public Water & Sewer Concept Plan
T1.1 Proposed Vehicle Circulation Plan
T1.2 Proposed Bicycle Circulation Plan
T1.3 Proposed Pedestrian Circulation Plan
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1. INTRODUCTION

1.1 Project Site and Applicants

The project site encompasses land owned by the Housing Authority of Clackamas County (HACC) (Clackamas County Tax Lot [TL] 700 on Assessor's Map 2S2E29AD) and two parcels owned by Steve Morrow (TLs 400 and 500 on Map 2S2E29DA). HACC and Steve Morrow are the applicants.

The project site, which is in the Park Place neighborhood of Oregon City, is shown on the Vicinity Map (Sheet A0.01 of the plans). The site is generally bounded by Apperson Boulevard on the west, Gain Street on the north, Front Avenue on the east, and Holcomb Boulevard on the south. According to Clackamas County Assessor's Maps, the site currently encompasses approximately 18.5 acres (TL 700 = 16.61 acres; TLs 400 and 500 = 1.89 acres). That does not include the area of land in dedicated public rights-of-way (A, B, C, and D streets on TL 700).

1.2 Existing Uses and Land Use Designations

The HACC portion of the project site (TL 700) is developed with Clackamas Heights, a public housing project built circa 1940. Existing uses on TL 700 include 100 residential units in single-story duplexes; a community garden and open spaces; and HACC administrative offices, property management/maintenance facilities, and a community meeting room. Tax Lot 700 is zoned R-3.5, allowing single-family attached and detached residences and two-family residences on lots of approximately 3,500 square feet. The R-3.5 district also allows multi-family residential units and cottage housing when permitted through a Master Plan (Chapter 17.65 of the Oregon City Municipal Code [OCMC]). The Oregon City Comprehensive Plan designation for TL 700 is MR, Medium Density Residential.

On-site streets at Clackamas Heights are A, B, C, and D streets, which are public rights-of-way. As shown on the Existing Streets and Easements site plan (Sheet C.02), they do not connect through the site. A series of pedestrian paths provide access through the site, and one connects to the parking lot for Steve's Select Market, directly south of TL 700.

Tax Lots 400 and 500 are owned by Steve Morrow and also referred to in this narrative as the "Morrow Parcels." Each parcel has one single-family residence. Both parcels have frontage on Holcomb Boulevard and are zoned MUC-1, which allows a mix of uses, including multi-family residential, office, service, and small-scale retail. The Oregon City Comprehensive Plan designation for TLs 400 and 500 is MUC, Mixed Use Corridor.

1.3 Surrounding Uses

Land uses surrounding the project site are primarily single-family homes (R-6, R-8, and R-10 zones). The Park Place Church is on the north side of Gain Street, across from the HACC offices. The Park Place elementary school, which was closed in 2009, is about 3 blocks north of the project site on Front Avenue. The nearest schools in operation are Holcomb Elementary, approximately 1 mile northeast of the project site on Holcomb Boulevard, and Ogden Middle School, which is south of the project site off Redland Road. Bordering the project site on the south is Steve's Select Market on Holcomb Boulevard, owned by Steve Morrow, and a Quick Stop Market on the corner of Front Avenue and Holcomb Boulevard.

Two designated natural areas are near the site. Both are associated with streams and steep banks above the stream. West of the project site, across Apperson Boulevard, is a steep bluff dropping down to an unnamed stream. South of the site, across Holcomb Boulevard, is another steep slope that drops down to Trout (also listed as Tour) Creek.

City-designated historic resources are present in the project vicinity, as shown on the Historic Resources map in the Appendix to this narrative. Holcomb Boulevard follows the general route of the historic Oregon Trail.

1.4 Proposed Development

HACC proposes to redevelop the entire site with a mix of uses, but primarily residential. The total site area to be redeveloped encompasses 21.07 acres (TL 700 = 838,814 square feet; TLs 400 and 500 = 78,965 square feet). Land that is currently dedicated for existing public rights-of-way (on-site public streets, i.e. A, B, C, and D streets) is included in the site area to be redeveloped. The Housing Authority of Clackamas County will seek to vacate those existing rights-of-way prior to project development in order to: (1) maximize the number of units developed in Clackamas Heights, (2) provide much-needed affordable housing to Clackamas County residents, (3) develop the site more efficiently, and (4) improve transportation connections through the site. Proposed new streets would be private with public access and utility easements granted by the applicants. Proposed easements are shown on Figure 1. (Further explanation about the proposed private streets is provided in Section 1.6 [Adjustments] and under 17.65.070 [Adjustments to Development Standards] of this narrative.) Additional public right-of-way width would be dedicated to the City along existing public street frontages (Apperson, Gain, Front, and Holcomb) to be consistent with the City's street standards. That right-of-way is not included in the net developable area of 21.07 acres to be redeveloped.

The Concept Development Plan describes the proposed uses and their general locations, the maximum intensity of development, and conceptual building footprints and lot configuration. Building and lot footprints and sizes may vary somewhat between the Concept Development Plan and the Detailed Development Plan. The development intensity may be less than the maximum described in the Concept Development Plan. Anticipated parcel lines shown on Figure 2 and lot sizes are based on current assumptions; they will be finalized in the Detailed Development Plan. Land divisions related to separate phases may be proposed separately, prior to development of the phase for which they are needed, because different developers may be responsible for developing different phases. The final sources of all project funding will affect the ownership structure and entities responsible for completing development and construction.

The current uncertainty about the development is related primarily to project funding. At present, HACC does not have funding to begin construction, but it will submit for funding from the US Department of Housing and Urban Development (HUD) later this year. The HUD funding, through the HOPE VI program, is competitive. One criterion for receiving funds is having land use approval of the conceptual plan (i.e. Concept Development Plan). If HACC is selected to receive HOPE VI funds, HACC will purchase the Morrow Parcels from Steve Morrow. HACC will execute an option-to-purchase agreement prior to its HOPE VI application; HACC will exercise its option only if awarded HOPE VI funding. HACC will also seek to combine the two tax lots into one lot. Additional funding sources may also be pursued. Without the funding, the project cannot be realized.

Figure 1. Proposed Easements Diagram

Figure 2. Anticipated Phasing Diagram

In summary, the proposed development includes a maximum intensity of:

- Approximately 290,000 square feet in residential uses (up to 283 units);
- 6,000-square-foot community center (incorporates Clackamas Heights property management facilities)
- 200 square feet for a community policing office, within a multi-family building;
- 14,000 square feet for an early childhood education/childcare and family wellness center; and
- 2,000 square feet of neighborhood-serving retail space.

The residential units will include a range of unit types, including single-family detached and attached, "stacked flats," carriage houses, and two multi-family buildings. Housing is anticipated to include some homeownership units, which would necessitate future land divisions. The approximate mix of housing is noted on Sheet A1.01, Proposed Site Plan. Potential future land divisions are shown on Figure 2, the Anticipated Phasing Diagram.

The traffic and utilities analyses conducted for the proposed development are based on the most intensive density and use of the project site.

The proposed development program is shown in Tables 1 and 2, and on the Proposed Site Plan (Sheet A1.01). Table 1 shows, for each phase of development, the potential maximum number of residential units, and the gross floor area (square feet) of both residential and non-residential uses. (Phasing is further described in Section 1.5.) All of the non-residential uses would be located in Blocks 4A and 4B in the southern part of the project site. They would serve Clackamas Heights residents, except the retail and early childhood education and family wellness center (ECEFWC), which would also serve the wider community. Table 2 shows the estimated numbers of each type of units proposed in the Concept Development Plan, as well as the type of buildings in which those units may be developed. The final phasing plan and residential unit mix is subject to available financing and will be further refined during the Detailed Development Plan stage. Figure 3 shows the blocks created by the proposed new streets. The block numbers are referred to throughout this application.

Table 1. Estimated Phasing Plan

Phase	Number of Units	Residential GSF (maximum)	Non-Residential GSF (maximum)	Total GSF (maximum)
1	demolition; development of new infrastructure			
2a	Up to 88	83,000	6,200	89,200
2b	Up to 48	39,000		39,000
2c	Up to 40	39,500		39,500
2d	Up to 11	19,500		19,500
3a	Up to 40	38,500		38,500
3b	Up to 7	12,000		12,000
4a	Up to 43	44,500		44,500
4b	Up to 8	14,000		14,000
5			16,000	16,000
TOTAL	**Between 250 and 283**	**290,000**	**22,200**	**312,200**

GSF = gross square feet

Table 2. Estimated Residential Unit Mix

Unit Type	Number of Units	
	Minimum	Maximum
1 bedroom	74	84
2 bedroom	101	113
3 bedroom	63	72
4 bedroom	12	14
TOTAL	**250**	**283**
Building Type		
Multi-family	163	184
Single-family: attached, detached	87	99
TOTAL	**250**	**283**

Prior to Phase 2 of the project, existing on-site structures, except the HACC offices, would be demolished. The existing on-site streets, which are public, would be removed. The public rights-of-way for those streets would be vacated during the Detailed Development Plan application and review process. Site redevelopment includes a proposed new street system that would provide access through the site, both east-west and north-south, as shown on Sheet A1.01. All of the proposed streets would be private with easements for public transportation access and utilities.

Proposed site redevelopment also includes a community garden in the northwest corner of the site, a community park for active recreation near the center of the site, a linear open space for passive recreation and wildlife habitat along the site's central north-south street, and numerous small pocket parks, as well as private yards adjacent to residential buildings. The proposed open spaces and parks are shown on Sheet A1.02, Open Space Plan. HACC will dedicate public access easements for the open spaces and parks, as shown on Figure 1. Please note that the exact boundaries of the open space areas will be finalized during the Detailed Development Plan stage. The community park, community garden, and natural habitat area shown on Sheet A1.01 will comprise approximately 2.93 acres and will be built in the locations shown on the proposed site plan, although their final shapes may vary slightly from the plan. The pocket parks, comprising approximately 0.55 acre (24,000 square feet), may change shape, size, and specific location to allow some flexibility in the layout of each phase. However, the applicants intend for pocket parks to be developed on each block, as shown on the proposed site plan. The final development will include pocket parks comprising an area not less than 80 percent of the area shown on the Concept Development Plan, i.e. not less than 0.44 acre.

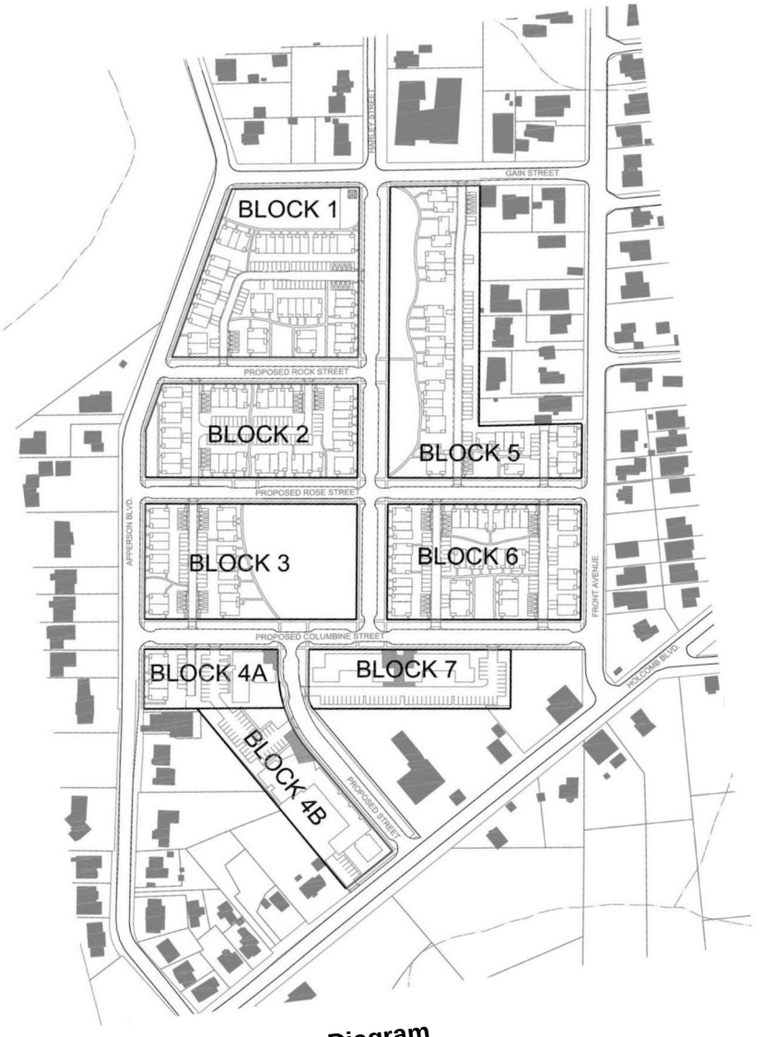


Figure 3. Block Key Diagram

1.5 Phasing Plan

The applicants intend to redevelop the site in phases. The anticipated phasing is shown on Figure 2 and Table 1. Construction is expected to occur within a 5-year timeframe, and Phase 1 may begin as early as 2011. However, construction timing is dependent upon when funding becomes available, and it may take up to 10 years to complete all phases of construction. The phasing information provided in this application is based on HACC's current understanding of potential funding availability and local real estate market trends, as well as construction considerations. Preparation of the Concept Development Plan and obtaining land use approval

for the Concept Development Plan is a requirement for the HOPE VI funding. Without the funding, the project cannot be realized. Because of the funding limitations, the applicants cannot provide more specific information about how many units would be developed in each phase and when each phase would be developed. Land divisions related to separate phases may also be proposed separately, prior to development of the phase for which they are needed, because different developers may be responsible for developing different phases.

Prior to Phase 1, HACC would relocate all Clackamas Heights residents to suitable housing. HACC expects that many residents would move back to Clackamas Heights once it is redeveloped while others may not. All relocations will comply with HUD regulations.

Phase 1 would involve demolition and removal of existing residences and streets, and construction of new infrastructure, i.e. streets and utilities. The existing HACC administrative offices, and property management/maintenance facilities and community room may remain in place and in use during Phase 1 and perhaps later phases, depending on when funding is available to relocate those facilities. The Concept Development Plan includes on-site space for project management facilities for Clackamas Heights only. HACC intends to relocate their other facilities off the project site prior to completion of the Clackamas Heights redevelopment project.

Phase 2 would involve construction of new housing units, as well as the community center (with space for Clackamas Heights property management facilities), community park, and multi-family buildings in the southwest portion of the project site. Housing in the east portion of the site would also be built, including single-family attached units along Front Avenue, which may include for-sale units (therefore potentially requiring a land division to create separate lots as shown on Sheet A1.01).

During Phases 3 and 4, housing in the northwest portion of the site would be built, including single-family attached units along Apperson Boulevard, which would potentially be on separate lots and require a land division.

Phase 5 would involve construction of the non-residential uses in the southernmost part of the site. As envisioned, Phase 5 would provide space for an early childhood education and family wellness center plus supporting office space, as well as a small, neighborhood-serving retail space.

1.6 Permit Approvals Sought

Concept Development Plan

The applicants seek approval of a Concept Development Plan, which is the first step in obtaining approval for a Master Plan according to the standards in OCMC Chapter 17.65. Along with the Concept Development Plan approval, the applicants seek adjustments to some development standards. Adjustments may be approved under the standards of OCMC 17.65.070.

Adjustments

The adjustments sought are listed below and discussed in more detail under OCMC 17.65.070 in this narrative. Approval criteria for adjustments are also addressed in that section.

"Streets" in General:
Applicants request that the words "street," "streets," or "right-of-way" in applicable OCMC standards be interpreted to mean the private streets proposed in the Concept Development Plan that will have public access and utility easements. Those streets include, as shown on the Proposed Site Plan (Sheet A1.01) and Figure 4: proposed Rock Street, proposed Rose Street, proposed Columbine Street, proposed extension of Harley Street north-south through the site, and the proposed street connecting between proposed Columbine Street and Holcomb Boulevard.

The applicants propose to provide private streets with public access and utility easements, rather than public rights-of-way, to increase the development of the site and better meet development objectives:

- build at least 250 affordable housing units in the R-3.5 zone;
- provide a community center and property management facilities to serve Clackamas Heights residents;
- provide some neighborhood retail and service uses (such as the ECEFWC) to serve Clackamas Heights and others in the area;
- preserve existing trees; and
- provide parks, a community garden, and other open spaces for recreation and wildlife habitat.

Based on input received during the public involvement process, both the advisory group to the Concept Development Plan and the local community support maximizing the number of units at Clackamas Heights as well as providing services on the Morrow Parcels.

OCMC 16.12.070 - Building site—Setbacks and building location.

OCMC 12.04.025 Street design – Minimum right-of-way.

OCMC 12.04.040 - Minimum Street Intersection Spacing Standards.

Access spacing standard (Oregon City Street Design Standards).

OCMC 12.04.045 Street design – Constrained local streets and/or rights-of-way.

OCMC 12.04.100 – Street design – Alleys.

OCMC 16.12.045 Building sites—Minimum density.

OCMC 17.16.040.A.1. - Minimum Lot Areas in R-3.5 zone, Residential Uses, and related On-Site Density Transfer.
The applicants request a reduction in the minimum lot size in the R-3.5 district for the homeownership units, as well as approval of an on-site density transfer from the MUC-1 portion of the project site to the R-3.5 portion of the site. The on-site density transfer would not propose additional units beyond the total allowed on the overall development site. A Concept Development Plan, or Master Plan review, enables the applicant to propose a comprehensive approach to redevelopment. To achieve a master plan that meets project goals, the applicants

seek to reallocate the potential development of approximately 44 dwelling units from the Morrow Parcels to TL 700.

OCMC 17.16.040.E. - Minimum Required Setbacks in R-3.5 Zone: *Interior side yard, attached unit, seven feet minimum setback on the side that does not abut a common property line; Corner side yard, ten-foot minimum setback; Attached and detached garage,detached garages on an alley shall be setback a minimum of five feet.*

OCMC 17.20.050 - Residential design standards, Main Entrances.

OCMC 17.29.050.D. - Dimensional Standards - MUC-1.

OCMC 17.54.010 – Accessory Buildings and Uses.

Tree Removal and Mitigation

Site redevelopment will necessitate removing some trees on the site. However, until more detailed development plans are developed, the specific trees to be removed cannot be identified. The applicants will mitigate for tree removal in accordance with OCMC 17.41 and will apply for tree removal and mitigation when the Detailed Development Plan is submitted. Additional information is included in Section 2.5 of this narrative.

NROD Exemption

Finally, the applicants seek an exemption to the Natural Resource Overlay District (NROD) standards. More information related to this request is provided in Section 2.6 of this narrative.

Figure 4. Fire Access and Curb Return Radii

2. APPLICABLE STANDARDS

The following sections address the standards in the OCMC that are applicable to the proposal. Each applicable standard is shown, and the applicant's response follows.

2.1 OCMC 17.50 – Administration and Procedures

17.50.050 Pre-application Conference and Neighborhood Meeting

The application for approval of a Concept Development Plan is processed through a Type III procedure, requiring a pre-application conference with Oregon City staff as well as a Neighborhood Association meeting. The applicants attended a pre-application conference on February 23, 2010. HACC and the design team, Mithun, presented details of the land use application and sought input from attendees at a Park Place Neighborhood Association on July 15th, 2010. The Park Place Neighborhood Association meeting was held from 6:00-7:30 in the Park Place Church, located at 13933 S Gain Street in Oregon City. Meeting notes are in the Appendix.

Outreach was conducted through a mailing sent out by the Housing Authority to residents living 300 and 1500 feet from the Clackamas Heights property. Nancy Walters, Chair of the Park Place Neighborhood Association, coordinated outreach to Park Place Neighborhood Association members.

17.50.060 Application Requirements

The applicants are the record property owners of the subject site. The permit application, signed by both property owners, is submitted with this application package. The applicants have submitted the appropriate fees along with documentation to demonstrate compliance with applicable approval criteria.

17.50.080 Complete Application – Required Information

… At a minimum, the applicant must submit the following:

A. One copy of a completed city application form …;
B. A complete list of the permit approvals sought by the applicant;
C. A current preliminary title report for the subject property(ies);
D. A complete and detailed narrative description of the proposed development …;
E. Up to 21 legible copies of all reports, plans, site plans and other documents required by the section of this code corresponding to the specific approval(s) sought;
F. At least one copy of the site plan and all related drawings shall be in a readable/legible 8½" by 11" format for inclusion into the city's bound record of the application;
G. Mailing labels for notice to all parties entitled under Section 17.50.090 to receive mailed notice of the application. …;
H. All required application fees;
I. Annexation agreements (if applicable);
J. Additional documentation as needed by the Community Development Director

Response: All of the above required information is submitted in this application package.

2.2 OCMC 17.65 – Master Plans

17.65.050 Concept Development Plan

A. Existing Conditions Submittal Requirements

1. Narrative statement. An applicant must submit a narrative statement that describes the following:

a. Current uses of and development on the site, including programs or services.

Response: The HACC portion of the project site (TL 700) is developed with Clackamas Heights, a public housing project built circa 1940. Existing uses on TL 700 include 100 residential units in 61 structures; a community garden and open spaces; and HACC offices and maintenance facilities. The one-story residences are wood-frame construction over crawlspaces. Parking is on the street or in driveways, which accommodate one vehicle per unit. The HACC offices are located in two single-story buildings along Gain Street. HACC property management facilities and a community room for Clackamas Heights residents are at 13900 Gain Street, at the corner of Gain Street and Apperson Boulevard. HACC administrative offices are located in the central east part of the site at 13930 Gain Street. HACC also has a warehouse and maintenance shop, along with a parking and storage area, at the corner of Gain Street and Apperson Boulevard. The HACC facilities serve all HACC properties, not just Clackamas Heights.

Tax Lots 400 and 500 are owned by Steve Morrow. Each parcel has one single-family residence. Tax Lot 400 extends back from Holcomb Boulevard to adjoin TL 700, as shown on Sheet C0.1.

b. History or background information about the mission and operational characteristics of the institution that may be helpful in the evaluation of the concept development plan.

Response: HACC is a public housing agency that provides affordable, safe, decent, and sanitary housing opportunities to low-income people in Clackamas County. HACC has two primary lines of business: 1) public housing that is owned, rented, and maintained by HACC; and 2) the Section 8 Housing Choice Voucher Program that allows residents to find their own housing in the rental market and use vouchers for rental assistance. Both programs are federally funded through the US Department of Housing and Urban Development (HUD). HACC also owns a 289-unit "affordable housing" portfolio operated under third-party management and a 62-unit "special needs" portfolio that is master leased to local mental health service providers.

For public housing, HACC currently owns, operates and maintains 566 units serving a mix of low-income families, elderly persons, and persons with disabilities in the following configuration:

Public Housing Project	No. of Units	Acres or Land Use	Target Population
Clackamas Heights	100	19.28 acres	Families
Oregon City View Manor	100	21.33 acres	Families and Disabled
Hillside Park	100	21.67 acres	Families and Disabled
Hillside Manor	100	High-Rise	Seniors and Disabled
Scattered Sites	166	avg. 5,000-sf lots	Families

Additional background information about HACC and the HACC 2009 Annual Report is submitted as part of this application, in the Appendix.

In January 2008, HACC completed a strategic planning process that evaluated various scenarios for restructuring the agency's housing portfolio. The study stemmed from the need to rehabilitate aging properties, capitalize on underused sites, create a long-term, financially viable portfolio, and generally provide a more modern, resource-efficient, healthy, well-maintained, and attractive environment for HACC residents. In response to the study, the HACC Board of Commissioners adopted a 10-Year Strategic Direction to Redevelop and Reposition the HACC Housing Portfolio and an accompanying 5-Year Action Plan. In accordance with the 5-Year Action Plan, HACC elected to focus on Clackamas Heights as its first major redevelopment project.

c. A vicinity map showing the location of the Concept Development Plan boundary relative to the larger community, along with affected major transportation routes, transit, and parking facilities.

Response: Sheet A0.01 shows the project vicinity.

d. Non-institutional uses that surround the development site. May also reference submitted maps, diagrams or photographs.

Response: Non-institutional land uses surrounding the project site are primarily single-family homes (R-6, R-8, and R-10 zones). Bordering the project site on the south is Steve's Select Market on Holcomb Boulevard and a Quick Stop Market on the corner of Front Avenue and Holcomb Boulevard. The Park Place Church is north of the site on Gain Street. (See also Section 1.3 and Sheet A0.01.)

e. Previous land use approvals within the Concept Development Plan boundary and related conditions of approval.

Response: The applicant's representative contacted Oregon City planning staff regarding any previous land use approvals for the project site. According to an electronic mail sent by Laura Butler, Oregon City planner, the City's records indicate that no land use applications have been approved for Clackamas County Map 22E29AD TL 700 and the following have been approved for Clackamas County Map 22E29DA TL 100-500:

- Conditional Use, CU 00-07 – File not found, may not be associated with property
- Water Resource, WR 01-03 – The applicant (Sprint PCS) requested a Water Resource Exemption, which was approved by Oregon City without conditions.
- Site Plan and Design Review, SP 01-07 – The applicant (Sprint PCS) requested Site Plan and Design Review for a wireless telecommunication facility. The City approved the application with conditions.
- Site Plan and Design Review, SP 91-18 – File not found, may not be associated with property.

f. Existing utilization of the site. May also reference submitted maps, diagrams or photographs.

Response: As shown on the Existing Conditions site plan (Sheet C.04), the project site is developed primarily with duplexes and single-family residences at a density considerably lower than that allowed by the land use designations applicable to the site.

g. Site description, including the following items. May also reference submitted maps, diagrams or photographs.

(1) Physical characteristics,
(2) Ownership patterns,
(3) Building inventory,
(4) Vehicle/bicycle parking,
(5) Landscaping/usable open space,
(6) FAR/lot coverage,
(7) Natural resources that appear on the City's adopted Goal 5 inventory,
(8) Cultural/historic resources that appear on the City's adopted Goal 5 inventory, and,
(9) Location of existing trees 6" in diameter or greater when measured 4' above the ground. The location of single trees shall be shown. Trees within groves may be clustered together rather than shown individually.

Response: The required information is shown on Sheets C4.1 through C4.4. There are no City-designated cultural or historic resources on the project site. A small portion of the site lies within the Natural Resource Overlay District; the applicants request an exemption from the district standards, as described in Section 2.6 of this narrative.

h. Existing transportation analysis, including the following items. May also reference submitted maps, diagrams or photographs.

(1) Existing transportation facilities, including highways, local streets and street classifications, and pedestrian and bicycle access points and ways;
(2) Transit routes, facilities and availability;
(3) Alternative modes utilization, including shuttle buses and carpool programs; and
(4) Baseline parking demand and supply study (may be appended to application or waived if not applicable).

Response: Existing transportation facilities are shown on Sheet A0.01 and described below.

Street Network and Connectivity. The local street network within the Clackamas Heights site does not contain any through streets, limiting connectivity to and from the surrounding neighborhoods. Harley Street terminates at Gain Street on the northern boundary of the site, and Rock Street terminates at Front Avenue east of the site. Clackamas Heights is connected with other parts of Oregon City through the following arterial and collector streets.

- Holcomb Boulevard, designated as a minor arterial, carries an average daily traffic (ADT) of 8,062 cars (2008).[1] Holcomb Curve, located just west of a bridge over OR 213, provides access to a small commercial center located at the southeast corner of Holcomb Boulevard and Redlands Road. Holcomb Boulevard also provides the site's primary access to OR-213 (via Redlands Road) and continues to downtown Oregon City as Abernethy Road.
- Apperson Boulevard, the west side boundary of the project site, is designated as a neighborhood collector. Apperson Boulevard carries a low-to-moderate traffic volume (ADT of 552 cars in 2008), and has speed humps to control traffic speeds.[2]

[1] Traffic count report. Clackamas County. http://www.co.clackamas.or.us/docs/dtd/trafficcount.pdf
[2] 2008 Traffic Study. Oregon City. http://www.orcity.org/sites/default/files/2008%20Volume%20Summary.pdf

- Front Avenue is a two-lane collector street with an ADT of 778 cars in 2008.[3] This street provides direct access to Park Place Elementary school (closed in June 2009).

Bicycle Facilities and Connectivity. Within Clackamas Heights, the local streets carry low traffic volumes but are only connected to one another via pedestrian footpaths (see next section), which would allow a bicyclist to cross the site on foot. There are no designated bicycle facilities directly serving the site; Figure 5 illustrates the existing designated facilities in closest proximity to the site. Adjacent to Clackamas Heights, Holcomb Boulevard and Apperson Boulevard are classified as high-traffic through streets for bicycling and are included as proposed bikeways in the Clackamas County Bicycle Master Plan. Holcomb Boulevard has wide striped shoulders in the vicinity of Clackamas Heights but lacks a shoulder on the east (downhill) side of Holcomb Curve. The Holcomb Boulevard Pedestrian Enhancement Plan does not recommend bike lanes on Holcomb Curve due to financial constraints; however, it does suggest bike signage at the intersection of Leroy Lane (just west of the OR 213 bridge) to guide downhill cyclists to bike lanes on Redland Road and uphill cyclists to future bike lanes on Holcomb Boulevard. Apperson Boulevard does not have shoulders but has speed humps for traffic calming and carries low-to-moderate traffic volumes.

Pedestrian Facilities and Connectivity. The local streets within Clackamas Heights have sidewalks on one side of the street. The streets are connected with pedestrian footpaths, including a path to Steve's Market and Holcomb Boulevard. A sidewalk is currently being constructed on the north side of Holcomb, east of Front Avenue, as called for by the Holcomb Boulevard Pedestrian Enhancement Plan. The plan also identified a need for sidewalks on the south side of Holcomb Curve, to extend the existing sidewalk on the Holcomb bridge over OR 213 to Abernethy Road.

Front Avenue has continuous but narrow sidewalks on the west side of the street only. Some segments have inadequate widths due to obstructions, such as mailboxes, which can be problematic for those in wheelchairs. Apperson Boulevard has continuous sidewalks on both sides, except the segment between Gain Street and La Rae Road (east side only).

Sheet C0.2 of the site plans shows existing pedestrian conditions at Clackamas Heights.

Transit Routes, Facilities and Availability. The primary bus route serving Clackamas Heights is TriMet Route 34, with two sets of basic bus stops (opposing sides of street) within about ¼-mile walking distance of the site (about 5 minutes) at the intersections of Holcomb and Front and Holcomb and Apperson (see Figure 5). Both sets of stops have standard TriMet stop poles and route signs, but no other amenities. There are adequate walking routes to both intersections; however, there are no marked street crossings at either intersection. The frequency of transit service is extremely limited; Route 34 makes only five round trips per day along Holcomb; all other trips terminate in downtown Oregon City. The nearest stop for those other trips on Route 34 is about a 1¼- mile (about 25-minute) walk from the site. All Saturday service on Route 34 was discontinued in September 2009 as part of overall TriMet service reductions. Productivity on Route 34 in FY 2009 was 14.9 boardings per revenue hour, tied for the 18th lowest performing route in the TriMet system. Several other bus lines provide good regional connectivity from downtown Oregon City on both weekdays and weekends, as frequently as every 15 minutes. Route 32 is a slightly shorter walk from Clackamas Heights than other routes that terminate at Oregon City Transit Center.

[3] 2008 Traffic Study. Oregon City. http://www.orcity.org/sites/default/files/2008%20Volume%20Summary.pdf

In addition, the Clackamas County Social Services Division operates two other transportation programs that provide service to residents of Clackamas Heights: the Transportation Reaching People (TRP) demand-response service for seniors and persons with disabilities, and the Catch-a-Ride (CAR) shuttle service open to seniors and persons with disabilities as well as low-income households. The shuttle provides rides to certain types of appointments as well as connectivity to TriMet buses due to the limited service to Clackamas Heights. Both programs operate Monday through Friday between 8 am and 5 pm on a donation basis.

Alternative Modes Utilization. Utilization of alternative modes is relatively limited at Clackamas Heights due to limited facilities and service. Based on data from the 2000 US Census for the Census block group containing the Clackamas Heights site (Tract 223, Block Group 2), 11.9% of workers carpool to work while 1.8% use public transportation. No residents reported walking or bicycling to work. By comparison, for Oregon City as a whole, 12.4% of workers carpool to work and 3.4% use public transportation, while 2.3% walk to work and 1.1% bicycle.

Baseline Parking Demand and Supply. Existing parking demand at Clackamas Heights is fulfilled by both on- and off-street parking. Table 3 shows the approximate number of off-street parking spaces currently provided relative to quantity of each existing land use. On-street parking is available on the local streets within Clackamas Heights and along Front Avenue; however, there is no on-street parking on Apperson Boulevard. Sheet C0.2 illustrates the location of non-residential off-street parking provided at Clackamas Heights.

Table 3. Existing Off-Street Parking within Clackamas Heights

Existing Land Use	Approximate Number of Parking Spaces	Quantity of Land Use
Residential Units (1-3 BR)	90	100 units
Community Room & Property Management Offices	21	2,533 sf.
HACC Warehouse & Shop	6	2,174 sf
HACC Administrative Offices	31	4,415 sf

i. Infrastructure facilities and capacity, including the following items.

(1) Water,
(2) Sanitary sewer,
(3) Stormwater management, and
(4) Easements.

Response: Existing infrastructure facilities are shown on Sheets C0.4. C1.1 and C1.2, and are described below.

Domestic Water. There are existing water mains in the streets bounding the site. Apperson Boulevard contains an 8-inch water main, which feeds numerous 2-inch lines within the site. It also feeds an 8-inch line that extends throughout the site, serving fire hydrants and reconnecting to various 2-inch lines and the 12-inch water main on Front Avenue. The eastern half of Gain Street contains an 8-inch water main that currently does not serve the site. Holcomb Boulevard contains a 12-inch water main that serves fire hydrants and buildings along the Holcomb frontage.

Figure 5. Existing Bicycle and Transit Conditions

Fire Protection. Fire hydrants currently exist around and within the site. Gain Street contains a hydrant on the northern side of the street that lines up with northeastern corner of the site. Front Avenue has a hydrant on the northeastern corner of the Rock Street intersection, the southeastern corner of the northern "C" Street intersection, and the northeastern corner of the Holcomb intersection. Holcomb Boulevard contains a fire hydrant on the northern side of the street (it will need to be decommissioned for site redevelopment because of the proposed street alignment on the east side of the Morrow Properties). Apperson Boulevard has a hydrant at the northeastern corner of its intersection with Holcomb, on the western side of the street midway between Holcomb and "D" Street, on the western side of the street between the two "D" Street intersections, at the northwestern corner of the southern "B" Street intersection, and at the northwestern corner of the Gain Street intersection. Five additional hydrants are on the HACC parcel.

Sanitary Sewer. An 8-inch sanitary line runs south along Apperson Boulevard starting just south of the "B" Street intersection with Apperson Boulevard. Holcomb Boulevard contains a 10-inch sanitary line that runs southwest, bends north where the Apperson line intersects it, and then continues flowing southwest as a 12-inch line. The southern portion of Front Avenue contains an 8-inch line that runs south and flows into the Holcomb line. North of the northern "C" Street intersection, Front Avenue contains an 8-inch line that runs north to Gain Street. From there it flows west through the 15-inch line in Gain Street. At the intersection of Gain and Apperson Boulevard, the line bends north and follows Apperson Boulevard. Additional sanitary lines are within the site, as shown on Sheets C0.4, C1.1, and C1.2.

Storm Water. A 12-inch storm line runs north along Apperson Boulevard, turns east at the Gain Street intersection, and flows east. It daylights into a swale briefly and then flows into a pipe that bends north and flows along Harley Street. East of Harley Street, Gain Street contains a combination of pipes and swales. Front Street contains a 12-inch storm line that starts at Rock Street and flows north. Front Street also contains a 12-inch line that begins between the two "C" Street intersections and flows south to Holcomb Boulevard, where it joins a 12-inch line in Holcomb that begins at Steve's Select Market and appears to flow northeast. Holcomb also contains a 12-inch line that begins approximately 250 feet northeast of the Apperson intersection and flows southwest. Additional storm lines are within the site.

Natural Gas. A gas lateral extends onto the northwestern corner of the site from a 2-inch line in the western half of Gain Street. Gas laterals also extend from the 4-inch line in Holcomb Boulevard to Steve's Select Market and one of the residences along the Holcomb frontage. An additional gas lateral extends westward along the platted 6th Street from the 2-inch line in Front Avenue, then turns north along the boundary between the HACC property and the adjacent residential properties to serve an existing building. In addition, 2-inch gas line exists in Apperson Boulevard between "B" Street and Holcomb Boulevard.

2. Maps and Plans.

a. Existing conditions site plan.

Response: An Existing Conditions site plan in accordance with this standard is submitted as Sheets C0.1 through C0.4 of the site plans.

b. Vicinity map.

Response: A Vicinity Map is submitted as Sheet A0.01 of the site plans.

c. Aerial photo.

Response: An aerial photo depicting the subject site and property within 250 feet of the proposed development boundaries is submitted as Sheet A0.01.

B. Proposed Development Submittal Requirements

1. Narrative statement. An applicant shall submit a narrative statement that describes the following:

a. The proposed duration of the concept development plan.

Response: The proposed site redevelopment is expected to be completed over five years and may begin as early as 2011. However, development will depend upon available funding; it may take up to 10 years to complete all phases of the development plan.

b. The proposed development boundary. May also reference submitted maps or diagrams.

Response: The proposed development boundary is shown on Sheets A1.01 and CO.1 of the site plans. It encompasses all property within TL 700 (Map 2S2E29AD) and TLs 400 and 500 (Map 2S2E29DA).

c. A description, approximate location, and timing of each proposed phase of development, and a statement specifying the phase or phases for which approval is sought under the current application. May also reference submitted maps or diagrams.

Response: The phasing plan is generally described in Section 1.5 of this narrative and shown on Figure 2. The applicants seek approval of all phases of the Concept Development Plan at this time.

d. An explanation of how the proposed development is consistent with the purposes of Section 17.65, the institutional zone, and any applicable overlay district.

Response: The purpose and intent of Section 17.65 are, as stated in OCMC 17.65.010:

> *"It is the intent of this Chapter to foster the growth of major institutions and other large-scale development, while identifying and mitigating the impacts of such growth on surrounding properties and public infrastructure. The City recognizes the valuable services and employment opportunities that these developments bring to Oregon City residents. The master plan process is intended to facilitate an efficient and flexible review process for major developments and to provide them with the assurance they need over the long term so that they can plan for and execute their developments in a phased manner. To facilitate this, the master plan process is structured to allow an applicant to address the larger development issues, such as adequacy of infrastructure and transportation capacity, and reserve capacity of the infrastructure and transportation system before expenditure of final design costs."*

The proposed development will help HACC grow by increasing the number and quality of units available to County residents and by replacing HACC administrative and maintenance facilities with more efficient facilities elsewhere. Clackamas Heights has provided affordable housing for approximately 70 years, and HACC has a long-term view for the proposed site redevelopment. HACC intends to redevelop the site in phases, as described in Section 1.5 of this narrative.

No part of the project site is within the institutional zone, so the purpose of the institutional zone is not applicable to the proposal.

A small area of the site is within the Natural Resource Overlay District (NROD). The applicants are requesting an exemption from the overlay district standards, as explained in Section 2.6 of this narrative. That section also addresses the purpose of NROD.

e. A statement describing the impacts of the proposed development on inventoried Goal 5 natural, historic or cultural resources within the development boundary or within 250 feet of the proposed development boundary.

Response: There are no inventoried Goal 5 natural, historic, or cultural resources within the proposed development boundary, as shown on Sheet A0.02. The proposed development would not negatively affect natural resources within 250 feet of the site, as described in Section 2.6.

There are some City-designated historic resources within 250 feet of the site, as shown on the Historic Resources Map in the Appendix. In addition, Clackamas Heights was built circa 1940 and is old enough to be eligible for listing as an historic resource. HACC has consulted with the State Historic Preservation Office (SHPO) regarding eligibility of Clackamas Heights as well as potential impacts of the proposed development on nearby historic resources. Julie Osborne, Historic Preservation Specialist with SHPO, reviewed the project site and nearby resources and concluded that Clackamas Heights is not eligible for listing as an historic resource and that the proposed development would not affect nearby resources. A letter from Ms. Osborne and supporting documentation is included in the Appendix to this narrative.

The SHPO also indicated that archaeological resources are not of concern as the site has been disturbed in the past. In addition, the Confederated Tribes of the Grand Ronde Community of Oregon Cultural Resources Department has reviewed the proposed site redevelopment along with the Tribes' archives and databases. According to an email sent by Eirik Thorsgard, Cultural Protection Coordinator for the Tribes, the Tribes have identified no archaeological/cultural or Traditional Cultural Properties within the project area and concur with the recommendations of SHPO with regard to the project. Supporting documentation is included in the Appendix to this narrative.

f. An analysis of the impacts of the proposed development on the surrounding community and neighborhood, including:

(1) Transportation impacts as prescribed in Subsection "g" below;
(2) Internal parking and circulation impacts and connectivity to sites adjacent to the development boundary and public right-of-ways within 250 feet of the development boundary;
(3) Public facilities impacts (sanitary sewer, water and stormwater management) both within the development boundary and on city-wide systems;
(4) Neighborhood livability impacts;
(5) Natural, cultural and historical resource impacts within the development boundary and within 250 feet of the development boundary.

Response: Transportation impacts are described under "g." below.

The Concept Development Plan reconfigures the current street network to provide better transportation (auto, bicycle, and pedestrian) circulation within the site and improved connectivity to the surrounding area. Existing loop streets would be vacated and replaced with a grid of private streets providing new east-west and north-south connections through the site.

Public utilities serving the site have adequate capacity to serve the proposed development. As described below, under standard 2.c., existing on-site utilities would be decommissioned, removed, and replaced with new utilities (water, sewer, and stormwater). Proposed stormwater facilities will incorporate low-impact development techniques to the extent feasible. Natural gas service would be extended into the site to serve the proposed buildings.

The proposed site redevelopment would increase residential density in the neighborhood. Initially, some residents in the surrounding Park Place neighborhood expressed concerns about more residents in Clackamas Heights and higher unit densities. However, most of their concerns dissolved as they participated in the planning process for the Concept Development Plan. (See Appendix for information about the public involvement process.) The proposed project will replace existing older housing stock with new, higher-density housing but will also provide parks and open spaces available for use by Clackamas Heights residents as well as the general public. Better street connections will provide more transportation options for residents of Clackamas Heights and the surrounding neighborhood.

According to the SHPO and tribal cultural representatives, the proposed project will not negatively affect any historic or cultural resources. There are no inventoried Goal 5 natural, historic, or cultural resources within the proposed development boundary, as shown on Sheet A0.02. The proposed development would not negatively affect natural resources within 250 feet of the site, as described in Section 2.6.

g. A summary statement describing the anticipated transportation impacts of the proposed development. This summary shall include a general description of the impact of the entire development on the local street and road network, and shall specify the maximum projected average daily trips, projected AM and PM peak hour traffic and the maximum parking demand associated with build-out each phase of the master plan.

Response: See below. Note that the trip generation analysis is based on a maximum development intensity of 285 units. The applicants propose a maximum of 283 units. Therefore, the trip generation analysis is somewhat more conservative.

The proposed development includes several new local through streets to enhance east-west and north-south connectivity to the surrounding neighborhood. The proposed Columbine Street and Rose Streets would provide two through connections between Front Street and Apperson Boulevard. Harley Street would be extended south from Gain Street to a T-intersection at the proposed Columbine Street. A proposed street would connect Columbine Street to Holcomb Boulevard. This street and the proposed extension of Harley Street are expected to provide the primary north-south circulation through the site. The required use of Columbine Streets to connect between proposed right-of-way and the Harley Street extension serves a traffic calming function along these streets, discouraging their use for non-local trips. Traffic volumes from the site are expected to be well-distributed across site access points and will be relatively low, and site connections will operate with minimal delay.

Maximum Projected Trip Generation

Based on the projected mix and size of uses, including a maximum 285 residential units, redevelopment of Clackamas Heights is expected to generate approximately 150 new primary trips and 10 new pass-by trips during the AM peak hour and 184 new primary trips and 8 new pass-by trips in the PM peak hour. Table 4 summarizes the new trips expected to be generated by the proposed development.

Table 4. Proposed Trip Generation, Net New Trips

		Weekday AM Peak Hour			Weekday PM Peak Hour		
Land Use	**Daily**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Total Driveway Trips:							
Primary Trips	1,630	150	52	98	184	109	75
Pass-by Trips	104	10	5	5	8	4	4

Additional detail on trip generation is included as part of the Traffic Impact Study.

Project AM and PM Peak Hour Traffic

All traffic study intersections will operate acceptably with forecast traffic volume increases for the buildout year (2016), including Phase 1 of the Highway 213 "jughandle" Improvement Project and development of the project. All site access points are forecast to operate at level-of-service (LOS) A in both peak periods, with the exception of the street and driveway on Holcomb Boulevard, forecast to operate at LOS B or C. Table 5 summarizes level-of-service at studied intersections on the streets surrounding the site. There are two one-letter changes between existing traffic and 2016 background levels (not including Clackamas Heights) at Anchor Road/Redland Road in both peak periods and at Redland Road / Highway 213 in the peak PM period. The only one-letter changes in level-of-service in 2016 from background level (without the Clackamas Heights redevelopment) to total with Clackamas Heights redevelopment is from A to B at the Redland Road / Highway 213 intersection in the AM peak period, based on only a 0.3-second increase in delay.

Table 5. Summary of AM and PM Peak Hour Traffic: LOS (Delay in seconds)

Study Intersection	Existing (AM/PM)	2016 Background (AM/PM)	2016 Total (AM/PM)
Front Ave. / Holcomb Blvd.	B (12.2) / B (12.3)	B (12.5) / B (12.8)	B (13.3) / B (13.6)
Redland Rd. /Abernethy Rd.-Holcomb Blvd.	C (34.6) / D (43.1)	D (35.3) / D (46.6)	D (36.4) / D (49.1)
Redland Rd. / Hwy. 213	A (8.2) / A (9.9)	A (9.8) / B (15.0)	B (10.1) / B (17.4)
Washington St.-Clackamas River Dr / Hwy. 213	B (11.4) / B (12.7)	B (12.0) / B (13.1)	B (12.2) / B (13.4)
Anchor Way / Redland Rd	C (23.9) / D (34.9)	D (27.0) / E (44.3)	D (27.3) / E (45.4)
Abernethy Rd. / Washington St.	B (15.8) / B (12.3)	B (16.2) / B (12.5)	B (16.3) / B (12.8)

Detailed traffic analysis is provided in the Traffic Impact Study, which is provided under separate cover with this application.

Internal Parking and Circulation Impacts and Connectivity

Internal parking needs within the proposed site development are met by both on- and off-street parking. On-street parking will be provided along Apperson Boulevard where it does not exist today. The additional connectivity provided by the proposed private streets within the site to the adjacent street network provides flexibility in the use of on-street parking within the site and improves the efficiency of circulation and connectivity to nearby land uses. Parking proposed along the internal private streets, which will have public access easements, is included in the on-street parking. The residential parking analysis is based on a maximum development

intensity of 285 units. The applicants propose a maximum of 283 units. Therefore, the residential parking analysis is somewhat conservative.

Parking Demand by Block. Table 6 summarizes the parking analysis by block. It shows the estimated number of off-street parking spaces required by City code, with reductions applied as proposed in the discussion of development standards – a total of 410 spaces. There are 369 off-street spaces provided, more than one space for each residential unit in the proposed site plan; in each block, at least one off-street space is provided for each residential unit in that block. A portion of the on-street parking available in each block is utilized to meet the minimum parking requirements, 48 spaces overall or 15% of total on-street spaces. Mixed-use blocks 4A and 4B (see Sheet A1.01), which have connected parking areas that effectively function as a common resource, can be considered a single parking zone for analysis purposes. The tables and discussion that follow provide additional detail.

Table 6. Summary of Parking, Estimated Parking Required vs. Proposed

Block	1	2	3	4A	4B	5	6	7	TOTAL
(A) Total parking required by block - all uses	68	58	36	26	29	64	71	58	410
(B) Number of residential units by block (1)	55	47	29	6	0	48	57	43	285
(C) Total Off-Street Parking Proposed	57	56	36	15	37	56	67	45	369
(D) Total On-Street Parking	57	46	50	18	29	48	51	21	320
(E) % On-Street Spaces Counted (2)	20%	10%	0%	15%	10%	15%	15%	75%	15%
(F) # On-Street Spaces Counted	11	4	0	2	2	7	7	15	48
(G) Off and On-Street Spaces (C + F)	68	60	36	17	39	63	74	60	417
(H) Proposed vs. Required (G – A)	0	2	0	-9	10	-1	3	2	7

(1) Estimated based on a maximum development intensity of 285 units; although the applicants propose a maximum of 283 units, the parking and traffic analyses assume a conservative maximum of 285 units. Final development total may range from 250-283 units and vary between blocks by a maximum of 10%.

(2) Oregon City allows on-street parking to be counted toward the minimum standards when it is on the block face abutting the subject land use. (Oregon City Municipal Code 17.52.010 (D))

Table 7 shows the estimated number of required spaces by land use and block, including reductions applied for shared parking within the mixed use zones.

Table 7. Estimated Parking Required and Proposed Reductions by Block and Use

	Block Number								
Proposed Land Use	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**	**TOTAL**
Total Parking spaces required (before adjustments)	68	58	36	28	32	64	71	58	415
Residential - Single-Family (not subject to maximums)	25	23	11	2	0	14	26	0	101
Residential - Multi-Family	43	35	25	6	0	50	45	57	261
Community Center (Block 4A) and Clackamas Heights Property Management Office (Block 4A)				20					20
ECEFWC -Education / Daycare (Block 4B)					25				25
Retail (Block 4B)					7				7
Community Policing Office in multi-family residential building (Block 7)								1	1
Parking demand reduction									
Reduction due to shared parking spaces in the commercial district (8%) [1]				2	3				5
Total parking required by block	**68**	**58**	**36**	**26**	**29**	**64**	**71**	**58**	**410**

[1] Oregon City allows up to 50% reduction for shared parking in mixed use developments. Oregon City Municipal Code 17.52.010 (C))

On-Street Parking. Table 8 shows the estimated amount of on-street parking available both on-site and on surrounding streets. A portion of these spaces, 15% overall, is counted towards meeting Oregon City's minimum parking requirements; City code allows parking on block faces abutting the land use to be counted towards the minimum standards.

Table 8. Estimated Total On-Street Parking Available

	Block								
On-Street Parking Location	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**	**TOTAL**
On-site	29	37	40	13	26	37	40	21	243
Surrounding Streets	28	9	10	5	3	11	11	0	77
Total On-Street Parking	**57**	**46**	**50**	**18**	**29**	**48**	**51**	**21**	**320**

Maximum Parking Analysis. Table 9 shows the maximum amount of off-street parking permitted under City code. There is no maximum standard for single-family residential uses. For proposed land uses subject to the maximum, a minimum of 310 spaces is required overall and a maximum of 515 spaces is allowed. Due to the shared parking concept employed for the Clackamas Heights site, the 101 spaces required for single-family residential uses are included in row (E), for 616 maximum spaces. As shown in row (F), the 369 total off-street spaces provided are less than the maximum standard allowed by code.

Table 9. Maximum Parking Allowed

	Block								
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**	**TOTAL**
(A) Minimum parking required for uses subject to maximum (1)	42	34	25	26	33	49	45	58	**310**
(B) Maximum parking allowed for uses subject to maximum (1)	65	53	39	72	52	75	69	90	**515**
(D) Minimum parking for single-family residential not subject to maximum standard	25	23	11	2	0	14	26	0	**101**
(E) Maximum parking (B + D)	90	76	50	74	52	89	95	90	**616**
(F) Proposed Off-Street Parking	57	56	36	15	37	56	67	45	**369**

(1) No maximum for single-family residential.

Summary of Anticipated Transportation Impacts

The following points summarize the major anticipated transportation impacts of the Concept Development Plan:

- The proposed site plan would have positive impacts on connectivity in the Park Place neighborhood by providing additional north-south and east-west traffic-calmed street connections, particularly for bicyclists and pedestrians. The site plan would also improve sidewalk conditions on all the streets bounding the site.

- Due to on-street and off-street parking provided on the project site, no adverse impact to on-street parking is anticipated in the surrounding neighborhood. Bicycle parking that would be provided as part of the site plan would greatly enhance minimal existing bicycle parking facilities available to residents and visitors.

- Traffic volumes are expected to be well distributed at site access points and will be relatively low.

- Vehicle queues at surrounding intersections will be similar to background conditions with adequate vehicle storage available. The Washington Street/Highway 213 intersection currently exceeds capacity during the AM peak hour; however, the planned Highway 213 "jughandle" project will improve operations. This and other surrounding intersections studied will continue to operate with acceptable levels of service with the new development. The southbound left-turn lane at the Holcomb/Redland Road intersection currently may exceed striped storage during the PM hour, however the intersection will continue to have sufficient excess capacity; it operates with a flexible timing plan and has detectors to sense the presence of vehicles and adjust the signal timing to accommodate peak queues.

- A potential issue at the small (6-space) parking lot serving the neighborhood retail use, identified through the traffic impact study, will be addressed by ensuring that adequate space is provided for motorists who enter the lot when it is full to make a 3-point turn to exit the lot. Other steps have been taken in the site design to avoid this situation, and additional recommendations are provided in the traffic impact study.

- Access spacing is relatively small (and below standards) between the existing western driveway for Steve's Select Market and the proposed north-south street connecting to Holcomb Boulevard, and between the proposed north-south street and the driveway access to the parking lot serving the neighborhood retail. This configuration is due to the limited length of site frontage along Holcomb Boulevard. Although no issues are anticipated due to relatively low traffic volumes, as recommended in the traffic impact study, it may be possible to reduce conflicts with possible future redevelopment.

- The proposed Columbine Street will intersect Front Avenue in the same location that C Street currently does, approximately 75 feet from the driveway to the Quick Stop Market which is below the 100-foot spacing standard for Front Avenue. The intersection spacing of approximately 145 feet is also below the applicable intersection spacing standard of 300 feet. However, traffic volumes will be low at both accesses on Front Avenue, with 95th percentile southbound queues of 25-feet or less on Front Avenue, therefore conflicts are not anticipated.

h. In addition to the summary statement of anticipated transportation impacts, an applicant shall provide a traffic impact study as specified by City requirements. The transportation impact study shall either:

(1) address the impacts of the development of the site consistent with all phases of the concept development plan; or

(2) address the impacts of specific phases if the City Engineer determines that the traffic impacts of the full development can be adequately evaluated without specifically addressing subsequent phases.

Response: The traffic impact study conducted for the Clackamas Heights development addresses anticipated transportation impacts for the 2016 buildout year, as determined in consultation with Oregon City and the Oregon Department of Transportation.

i. If an applicant chooses to pursue option h(1), the applicant may choose among three options for implementing required transportation capacity and safety improvements:

(1) The concept development plan may include a phasing plan for the proposed interior circulation system and for all on-site and off-site transportation capacity and safety improvements required on the existing street system as a result of fully implementing the plan. If this option is selected, the transportation phasing plan shall be binding on the applicant.

(2) The applicant may choose to immediately implement all required transportation safety and capacity improvements associated with the fully executed concept development plan. If this option is selected, no further transportation improvements will be required from the applicant. However, if a concept development plan is later amended in a manner so as to cause the projected average daily trips, the projected AM or PM peak hour trips, or the peak parking demand of the development to increase over original projections, an additional transportation impact report shall be required to be submitted during the detailed development plan review process for all future phases of the development project and additional improvements may be required.

(3) The applicant may defer implementation of any and all capacity and safety improvements required for any phase until that phase of the development reaches the detailed development plan stage. If this option is selected, the applicant shall submit a table linking required transportation improvements to vehicle trip

thresholds for each development phase.

Response: Based on the Traffic Impact Study, no improvements are required to address transportation impacts, beyond those already in the Concept Development Plan. If any additional improvements are required as part of the development review process, the applicant elects to defer implementation of required capacity and safety improvements until that phase of the development reaches the detailed development plan stage.

The Traffic Impact Study identified several recommended improvements to be incorporated into the site development plan. Table 10 identifies the anticipated phase of development where each recommended transportation improvement applies. Note that a vehicle trip threshold is not applicable to any of the recommended improvements identified in the traffic impact study.

Table 10. Recommended Transportation Improvements and Phasing

Recommended Improvement	Phase	Vehicle Trip Threshold
Low growing landscaping and non-sight obstructing trees are recommended at the internal site intersections, where the site accesses intersect the surrounding roadways, and along the horizontal curve on Apperson Boulevard for adequate intersection sight distance.	1 - 5	N/A
Minimizing the potential for the neighborhood retail parking lot to reach capacity and improvements to the parking lot access, circulation, and capacity are recommended.	5	N/A
Provision for shared accesses or cross-over easements along the Holcomb Boulevard frontage are recommended to consolidate driveways and reduce conflicts between accesses in the near term or with future redevelopment of the adjacent parcels.	5 (or as future development occurs)	N/A

Source: Traffic Impact Study; Figure 2, Anticipated Phasing

j. The applicant or city staff may propose objective development standards to address identified impacts that will apply within the proposed development on land that is controlled by the institution. Upon approval of the concept development plan, these standards will supersede corresponding development standards found in this code. Development standards shall address at least the following:

(1) Pedestrian, bicycle and vehicle circulation and connectivity;
(2) Internal vehicle and bicycle parking;
(3) Building setbacks, landscaping and buffering;
(4) Building design, including pedestrian orientation, height, bulk, materials, ground floor windows and other standards of Chapter 17.62; and
(5) Other standards that address identified development impacts.

Response: The applicants are not proposing alternative objective development standards.

2. Maps and diagrams. The applicant must submit, in the form of scaled maps or diagrams, as appropriate, the following information:

a. A preliminary site circulation plan showing the approximate location of proposed vehicular, bicycle, and pedestrian access points and circulation patterns, parking and loading areas or, in the alternative, proposed criteria for the location of such facilities to be determined during detailed development plan review.

Response: A preliminary site circulation plan is submitted on Sheets T1.1, T1.2, T1.3, and C2.1 of the site plans.

Vehicle Circulation Plan. Sheet T1.1 provides a vehicle circulation plan for Clackamas Heights. Vehicle circulation is provided on a grid of internal streets within the site, which connect to the streets bounding the site. These streets provide two east-west connections through the site (proposed Rose and Columbine streets), and one north-south connection. The north-south connection is provided by a proposed extension of Harley Street between Gain and Columbine Streets, and a new north-south street connecting Columbine Street to Holcomb Boulevard, offset to discourage non-local trips from utilizing Harley Street. Alleys provide access to all off-street parking areas.

Bicycle Circulation Plan. Sheet T1.2 provides a bicycle circulation plan for the Concept Development Plan. There are no designated bicycle routes in the direct vicinity of the site, although bicycle lanes are planned for Holcomb Boulevard and striped shoulders currently exist. Sheet C2.1, Site Circulation Plan, illustrates a 6-foot bicycle lane specified in the frontage of the site along Holcomb Boulevard, which provides primary access to downtown Oregon City and Holcomb School. All of the site's local streets and site access points will be suitable for bicycle access. Rose and Columbine Streets would provide east-west access through the site, connecting to both Front Avenue and Apperson Boulevard. The proposed street connecting Columbine Street and Holcomb Blvd, and the extension of Harley Street between Gain and Columbine Streets provide north-south bicycle connectivity, including a local access route to Park Place School (upon reopening). Apperson Boulevard is an existing route adjacent to the site with speed humps for traffic calming; it provides a moderate-traffic bicycle route connecting to either Holcomb Boulevard or Clackamas River Drive.

Pedestrian Circulation Plan Sheet T1.3 highlights the major sidewalks and pathways that facilitate pedestrian connectivity within and through the site in the proposed development plan. All proposed local streets will be constructed with sidewalks on both sides of the street and are connected to the external street grid, providing pedestrians with equivalent access than that provided for vehicles and bicyclists. In addition, sidewalks will be provided on the segment of Holcomb Boulevard that fronts the site, where none exist today. The existing sidewalks that front the site on Apperson Boulevard and Front Street will be reconstructed with wider through zone and frontage zones to accommodate street furnishings that obstruct portions of the existing sidewalks. Within the site, major pathways facilitate efficient pedestrian access and are illustrated in the drawing. Additional minor pathways and paved areas that provide access to individual land uses including to each dwelling unit are not highlighted but are shown in the base drawing.

b. The approximate location of all proposed streets, alleys, other public ways, sidewalks, bicycle and pedestrian access ways and other bicycle and pedestrian ways, transit streets and facilities, neighborhood activity centers and easements on and within 250 feet of the site. The map shall identify existing subdivisions and development and un-subdivided or unpartitioned land ownerships adjacent to the proposed development site and show how existing streets, alleys, sidewalks, bike routes, pedestrian/bicycle access ways and utilities within 250 feet may be extended to and/or through the proposed development.

Response: Proposed transportation facilities are shown on Sheets T1.1, T1.2, T1.3, and C2.1 of the site plans. Surrounding properties are developed on a street grid, which does not currently connect through the project site. The proposed development would provide better connections through the site, including a southward extension of Harley Street to Holcomb Boulevard.

Sheets C3.1 and C3.2 show how proposed utilities would connect to the existing utilities surrounding the site. Existing water, sewer, storm, telephone, electrical lines, and fire hydrants on the project site would be decommissioned and demolished. Several on-site natural gas laterals may also need to be decommissioned.

c. The approximate location of all public facilities to serve the proposed development, including water, sanitary sewer, stormwater management facilities.

Response: Proposed public facilities are shown on Sheets C3.1 and C3.2.

Water. New water services would run through the proposed street public access easements and connect to existing water mains on Apperson Boulevard, Gain Street, Front Avenue, and Holcomb Boulevard. New fire hydrants would be placed according to fire department code; units that cannot be reached by fire trucks will have sprinklers installed in the units.

Sanitary Sewer. A new sanitary line would run along the proposed street on the Morrow Parcels (TL 400) and connect to the existing line in Holcomb Boulevard. A sanitary main would run through the proposed Harley Street extension and collect sanitary flows from laterals that extend along the proposed east-west streets. The new sanitary main would connect to existing line in Gain Street at the north end of the site. In addition, a new sanitary line would be added along the northern section of Apperson Boulevard just north of the proposed Rock Street alignment and bend east at Gain Street to connect into the Gain Street line.

Storm Water. The Concept Development Plan utilizes low-impact development (LID) methods to the maximum extent feasible. Proposed on-site streets would shed runoff toward one side (north or east) and into widened landscape strips that would contain green-street stormwater swales that would treat, partially infiltrate, detain, and convey stormwater. To prevent long-term ponding, each swale would have an underdrain layer. At each road intersection, stormwater in the swales would either flow below ground and reemerge into a new swale or drain to an underground storm trunk line. The trunk line would be installed only where necessary to limit the amount of piping needed. If additional stormwater detention is required, the trunk line would daylight into a detention pond in the northeastern portion of the site. From there, the trunk line and swale underdrain system would connect to the City's existing storm system within the Harley Street right-of-way.

The alleys and private parking surfaces would have a permeable pavement, such as pervious concrete, that allows stormwater to drain into a sub-grade rock drainage layer. This will allow some of the stormwater to infiltrate. The remaining stormwater would collect in perforated sub-drainage pipes and drain to the public storm system.

Roof runoff would be either infiltrated on site or collected for non-potable use such as irrigation. Roofs that face the street would drain into gently sloped, vegetated basins on the site that can overflow into the public street swales during heavy rain events. Roofs that face the private alleys would drain to a system of underground storm collection pipes. The collection system would drain either to underground cisterns for water reuse or soakage trenches for infiltration. Overflow from the system would daylight into street swales if the grade allows or flow into the stormwater trunk line.

Natural Gas. The Concept Development Plan will provide the proposed residential and non-residential buildings with natural gas service. The existing mains are sufficient to serve the development's needs.

d. The approximate projected location, footprint and building square footage of each phase of proposed development.

Response: The general phasing plan is described in Section 1.5 of this narrative and shown on Figure 2. Approximate building locations, footprints, and square footage are shown on Sheet A1.01 of the site plans. Table 1 of this narrative summarizes the total building area proposed for each phase.

e. The approximate locations of proposed parks, playgrounds or other outdoor play areas; outdoor common areas and usable open spaces; and natural, historic and cultural resource areas or features proposed for preservation. This information shall include identification of areas proposed to be dedicated or otherwise preserved for public use and those open areas to be maintained and controlled by the owners of the property and their successors in interest for private use.

Response: Sheet A1.02 shows the required information. Parks and open spaces would be set aside, and HACC would grant public access easements for those areas, as shown on Figure 1.

C. Approval Criteria for a Concept Development Plan. The Planning Commission shall approve an application for Concept Development plan approval only upon finding that the following approval criteria are met.

1. The proposed Concept Development plan is consistent with the purposes of Section 17.65.

Response: The purpose and intent of Section 17.65 are, as stated in OCMC 17.65.010:

"It is the intent of this Chapter to foster the growth of major institutions and other large-scale development, while identifying and mitigating the impacts of such growth on surrounding properties and public infrastructure. The City recognizes the valuable services and employment opportunities that these developments bring to Oregon City residents. The master plan process is intended to facilitate an efficient and flexible review process for major developments and to provide them with the assurance they need over the long term so that they can plan for and execute their developments in a phased manner. To facilitate this, the master plan process is structured to allow an applicant to address the larger development issues, such as adequacy of infrastructure and transportation capacity, and reserve capacity of the infrastructure and transportation system before expenditure of final design costs."

The proposed Concept Development Plan is for HACC, an institution responsible for providing affordable housing for residents of Clackamas County. The proposed development will help the institution grow by increasing the number and quality of units available to County residents. By replacing HACC administrative and maintenance facilities with more efficient facilities elsewhere, HACC will be able to provide new functions, like the ECEFWC and neighborhood retail opportunities, that are intended to serve the larger Park Place neighborhood. Clackamas Heights has provided affordable housing for approximately 70 years, and HACC has a long-term view for the proposed site redevelopment. HACC intends to redevelop the site in phases, as described in Section 1.5 of this narrative.

2. The transportation system has sufficient capacity based on the City's level of service standards and is capable of safely supporting the development proposed in addition to the existing and planned uses in the area, or will be made adequate by the time each phase of the development is completed.

Response: As demonstrated in the traffic impact analysis, the transportation system surrounding Clackamas Heights has the capacity to operate acceptably given 2016 background levels, assuming completion of Phase 1 of the Highway 213 "jughandle" improvement project. The intersections included in the analysis have the capacity to operate acceptably with the proposed redevelopment of Clackamas Heights.

3. Public services for water supply, police, fire, sanitary waste disposal, and storm-water disposal are capable of serving the proposed development, or will be made capable by the time each phase of the development is completed.

Response: HACC and its engineering consultant have coordinated with City public works and fire department regarding the proposed development. Fire access and buildings to have sprinklers are shown on Figure 4. Existing public services are capable of serving the proposed development.

4. The proposed Concept Development plan protects any inventoried Goal 5 natural, historic or cultural resources within the proposed development boundary consistent with the provisions of applicable overlay districts.

Response: There are no inventoried Goal 5 resources on the project site. A small part of the site area is within the NROD boundary. See Section 2.6 of this narrative for more information.

5. The proposed Concept Development plan, including development standards and impact mitigation thresholds and improvements adequately mitigates identified impacts from each phase of development. For needed housing, as defined in ORS 197.303(1), the development standards and mitigation thresholds shall contain clear and objective standards.

Response: The Concept Development Plan provides adequate mitigation for the anticipated impacts of development. Traffic impacts and recommended mitigation are described in the Traffic Impact Study, as well as in the list of transportation impacts and Table 10 above. Stormwater impacts would be adequately mitigated by the stormwater capture and treatment measures described above. Tree removal impacts and mitigation are described in Section 2.5 of this narrative.

6. The proposed Concept Development Plan is consistent with the Oregon City Comprehensive Plan and its ancillary documents.

Response: The Comprehensive Plan designations for the project site are MR (medium-density residential) on TL 700 and MUC (mixed use corridor) on the Morrow Parcels. According to the Comprehensive Plan, MR is "residential developments with dwelling unit types such as single-family units, rowhouses, and townhouses…More intensive new and redeveloped residential construction can be built at medium densities under certain circumstances." The Plan defines MUC as "higher density mixed uses that are supportive of transit and conducive to pedestrian traffic. Urban density residential and commercial goods and services are typical uses."

The Concept Development Plan demonstrates consistency with the City's Comprehensive Plan in that the proposed residential development, overall, is medium density. It incorporates a mix of housing types including single-family detached and attached, "stacked flats," carriage units, and multi-family buildings. The highest intensity uses (multi-family and non-residential) are clustered at the south end of the project site. Higher density (multi-family) residential buildings are sited on TL 700 but adjacent to the MUC property. Non-residential uses (service and retail) are sited on land designated MUC. Because of the nature of the funding sources available and their associated requirements, mixing residential and non-residential uses on the Morrow Parcels

may be infeasible. HACC expects that public funding could not be obtained for housing on the Morrow Parcels if it were included in a mixed-use situation. The higher intensity uses adjacent to and on the Morrow Parcels are situated so as to be near Holcomb Boulevard, a transit corridor (this is consistent with Plan Goal 2.3).

As demonstrated throughout this narrative, the Concept Development Plan would redevelop an underutilized site (Plan Goals 14.2, 11.1; Policy 14.2.1, 11.1.4) in an efficient manner (Plan Goal 2.1, Policies 2.1.2 and 2.1.3) through a master planning process (Policy 2.1.3) to:

- provide needed affordable housing at a higher density than exists on the site (Plan Goals 10.1, 10.2, 12.1; Policies 10.2.3, 10.1.4, 10.2.1, 10.2.2, 12.1.3);
- support and enhance neighborhood livability (Goal 2,4, Policies 2.4.2, 2.4.3, 2.4.5);
- develop a mix of land use types on the project site (Goal 2.1, Policy 2.1.2);
- provide active recreation areas and passive recreation opportunities that retain the natural environment (Goals 5.1, 8.1; Policies 5.1.2,8.1.1, 8.1.9, 8.1.14);
- improve multi-modal, safe, transportation connections within and through the site while mitigating traffic impacts (Goals 2.4, 9.8, 11.6, 12.1, 12.3, 12.5, 12.6, 12.7, 13.2; Policies 2.4.3, 9.8.4, 11.6.1, 12.1.1, 12.1.4, 12.3.1, 12.3.2, 12.3.3, 12.5.1, 12.5.3, 12.6.1, 12.6.2, 12.6.4, 12.7.1, 12.7.2, 12.7.5, 13.2.2);
- provide adequate public facilities and incorporate low-impact stormwater management design (Goals 5.4, 6.2, 11.1 11.2, 11.4, 11.6, 11.7, 11.9, 11.10, 12.7; Policies 5.4.11, 5.4.13, 5.4.16, 6.2.2, 11.1.3, 11.1.4, 11.1.6, 11.2.4, 11.4.2, 11.4.3, 11.4.4, 11.6.1, 11.7.1., 11.7.2, 11.9.1, 11.10.1, 11.10.3, 11.10.5, 12.7.1, 12.7.5);
- support existing and future commercial uses along Holcomb Boulevard (Plan Goals 2.3, 2.4, 2.5, 9.2, 9.5, 9.8, 12.1; Policies 2.3.1, 2.4.3, 2.5.1, 2.5.2, 2.5.4, 9.2.1, 9.5.1, 9.8.4, 12.1.2, 12.1.3); and
- conserve natural and historic resources and energy (Goals 5.1, 5.3, 5.4, 6.2, 8.1, 13.1, 13.2; Policies 5.1.2, 5.4.1 5.4.5, 5.4.11, 5.4.13, 5.4.16, 6.2.2, 8.1.9, 13.1.2, 13.2.1, 13.2.2, 13.2.5, 13.2.6).

The plan was developed with considerable input from Oregon City staff, Clackamas Heights residents, neighborhood representatives and Park Place neighborhood association, social service providers, and others, as demonstrated in the Appendix (public participation plan and public meeting records) (Plan Goals 1.1, 1.2 and 1.4; Policies 1.1.1, 1.4.1). The Concept Development Plan is consistent with the comprehensive plan.

D. Duration of Concept Development Plan. A Concept Development plan shall involve a planning period of at least five years and up to twenty years. An approved Concept Development plan shall remain in effect until development allowed by the plan has been completed through the detailed development plan process, the plan is amended or superseded, or the plan expires under its stated expiration date. (Ord. 03-1014, Att. B3 (part), 2003)

Response: The applicants began preparation of the Concept Development Plan in 2009. The proposed site redevelopment is expected to be completed over five years and may begin as early as 2011. However, development will depend upon available funding; it may take up to 10 years to complete all phases of the development plan.

17.65.060 Detailed Development Plan

Response: The applicants are submitting for review and approval of the Concept Development Plan at this time. According to Oregon City process, the Concept Development Plan must be approved prior to submittal for the Detailed Development Plan. Standards of 17.65.060 are not applicable for this application.

17.65.070 Adjustments to Development Standards.

A. Purpose. In order to implement the purpose of the City's master plan process, which is to foster the growth of major institutions and other large-scale development, while identifying and mitigating their impacts on surrounding properties and public infrastructure, an applicant may request one or more adjustments to the applicable development regulations as part of the master planning process. These include, but are not limited to, items such as: dimensional standards of the of the underlying zone, Site Plan and Design Review criteria, residential design standards, and standards for land division approval.

Response: The applicants request adjustments to a number of development standards, as listed in Section 1.6 and below, under 17.65.070.D.

B. Procedure. Requests for adjustments shall be processed concurrently with a general development plan. An adjustment request at the detailed development plan review shall cause the detailed development plan to be reviewed as a Type III application.

Response: The applicants are requesting the adjustments now, along with submittal of the Concept Development Plan. The applicants understand that, if additional adjustments are requested when the Detailed Development Plan is submitted, that plan will be reviewed as a Type III application.

C. Regulations That May Not be Adjusted. Adjustments are prohibited for the following items:

1. To allow a primary or accessory use that is not allowed by the regulations;
2. To any regulation that contains the word "prohibited";
3. As an exception to a threshold review, such as a Type III review process; and
4. Any exception to allow a use not identified as a permitted or conditional use in the underlying zone.

Response: The applicants do not request adjustments to any of the above regulations.

D. Approval Criteria. A request for an adjustment to one or more applicable development regulations under this section shall be approved if the review body finds that the applicant has shown the following criteria to be met.…

Response: The approval criteria for each requested adjustment are addressed below.

"Streets" in General:

Applicants request that the words "street," "streets," or "right-of-way" in applicable OCMC standards be interpreted to mean the private streets proposed in the Concept Development Plan that will have public access and utility easements. Those streets include, as shown on the Proposed Site Plan (Sheet A1.01): proposed Rock Street, proposed Rose Street, proposed Columbine Street, proposed extension of Harley Street north-south through the site, and the proposed street connecting between proposed Columbine Street and Holcomb Boulevard.

The applicants propose to provide private streets with public access and utility easements, rather than public rights-of-way, to increase the development of the site and better meet development objectives:

- build at least 250 affordable housing units in the R-3.5 zone;
- provide a community center and property management facilities to serve Clackamas Heights residents;
- provide some neighborhood retail and service uses (such as the ECEFWC) to serve Clackamas Heights and others in the area;
- preserve existing trees;
- and provide parks, a community garden, and other open spaces for recreation and wildlife habitat.

If the applicants dedicated rights-of-way for the proposed on-site streets, the land dedication would reduce the developable area of the site to a size that would not allow them to achieve their objectives. Based on input received during the public involvement process, both the advisory group to the Concept Development Plan and the local community support maximizing the number of units at Clackamas Heights as well as providing services on the Morrow Parcels.

The applicants will grant public access and utility easements for the on-site streets, as shown on Figure 1 (Proposed Easements Diagram). The private streets have been designed in accordance with City standards, except where adjustments are requested as described elsewhere in this narrative. The streets would be accessible to the public, but they would be privately maintained (by the applicants).

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purposes of the street regulations are to ensure that streets are developed in a consistent manner and meet design standards for safety, efficient traffic movement, etc. As demonstrated in this application, the proposed private streets will meet all applicable street design regulations, except where adjustments are requested.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 for an explanation of why the applicants feel the NROD overlay is not applicable to the site.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Because the private streets will be built to meet public street standards (except where adjustments are requested), no impacts will result from the adjustment. Impacts related to the street design adjustments are discussed for each specific adjustment, below.

Fire access is provided on proposed Harley St, proposed Columbine St, and the proposed street connecting at Holcomb Boulevard. Some of the buildings (those more than 150 feet from a fire access) will be sprinklered. See Figure 4.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 for an explanation of why the applicants feel the NROD overlay is not applicable to the site.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: Proposed Harley Street, proposed Columbine Street, and proposed street connecting at Holcomb Blvd meet all of the City standards for "streets." They provide an interconnected and accessible, multi-modal street system (Plan Policies 12.1.1, 12.3.1, 12.3.2, 12.6.4) with a design that calms traffic to improve safety (Policies 12.5.3, 11.10.3) and incorporates bioswales and other methods to reduce stormwater runoff (Policies 5.4.16, 6.2.2, 11.4.2, 11.4.4,12.7.1, 12.7.5). The proposed street layout and design accommodates fire vehicles (see Figure 4) and enhances police protection by providing clear lines of sight along streets and the opportunity to drive through the site (Plan Goals 11.9, 11.10). It also promotes connectivity within the Park Place neighborhood and between neighborhood residential uses and commercial uses on Holcomb Boulevard (Plan Goal 2.4, Policies 2.4.2, 2.4.3).

The narrower streets (adjustment described below) proposed provide a more pedestrian/bicycle-friendly experience (Plan Goals 2.4, 12.1, 12.3; Policies 12.1.1, 12.1.4 as well as a more compact, efficient site plan (Plan Goals 2.1, 13.1). The narrower streets also equate to less impervious surface on the site (Policy 11.4.2), and will calm traffic – leading to safer streets (Goal 12.5; Policies 12.5.3, 11.10.3).

OCMC 12.04.025 Street design – Minimum right-of-way. *For local streets, the street design standards are for a pavement width of 32 feet and a maximum right-of-way width of 54 feet.*

The applicants are submitting a street design plan (Sheet C2.1) as an alternative to the above street design standards, as permitted by 12.04.025(B). All proposed streets are local streets. The street designs facilitate safe, multi-modal travel within the site and improve the site's connectivity to the surrounding neighborhoods and transportation facilities.

The proposed street connecting Columbine Street and Holcomb Boulevard, as well as proposed Columbine and propose Harley streets, will have a 32-foot paved width, meeting the standard. However, the proposed public access and utility easements for those streets is 64 feet wide, which exceeds the maximum right-of-way standard shown in Table 12.04.020. The wider easement is proposed to provide sidewalks and generous planting strips/bioswales for stormwater infiltration. Sheet C2.1 shows street cross-sections. The applicants have consulted with Bob Cullison, City engineer, regarding the proposal and request approval of the alternative street design as an adjustment, as explained elsewhere in this narrative.

The proposed Rock and Rose streets do not meet the minimum paved width standard. That adjustment is addressed under OCMC 12.04.045 (constrained streets), below. However, as with the other on-site streets, the public access and utility easements for the two streets exceed the maximum right-of-way standard. The easements for proposed Rock and Rose streets are 56 feet wide.

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of the right-of-way width standards is to provide adequate space along streets for utilities as well as pedestrian and bike travel and space to plant trees and other vegetation. They also help ensure that adequate sight distance is maintained. The purpose of maximum right-of-way width standards is to limit the area that would need to be publicly maintained and also preserve adjacent land for other development. Because the proposed streets will be privately maintained and on the same parcel as the proposed development, the wider width proposed will have no effect on public maintenance or development of adjacent land.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: The southernmost portion of the proposed street connecting proposed Columbine Street with Holcomb Boulevard lies within the NROD. See Section 2.6 for more information.

4. Any impacts resulting from the adjustment are mitigated; and

Response: The adjustment would have no negative impacts requiring mitigation.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: The southernmost portion of the proposed street connecting proposed Columbine Street with Holcomb Boulevard lies within the NROD. See Section 2.6 for more information.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment allows for sidewalks and wide planting strips, which will incorporate bioswales to provide part of the on-site stormwater facilities. Pedestrian improvements and on-site stormwater treatment that incorporates low-impact design are both consistent with Oregon City's long-term goals in the Comprehensive Plan (Goals 2.4, 5.4 [Policy 5.4.16], 6.2, 11.4, 11.6, 12.1, 12.3, 12.7).

OCMC 12.04.040 - Minimum Street Intersection Spacing Standards. *All new development and redevelopment shall meet the following public street intersection spacing standards:*

Table 12.04.040—Public Street Intersection Spacing Standards

	Distance in Feet between Streets of Various Classifications								
	Between Arterial and Arterial	**Between Arterial and Collector**	**Between Arterial and Neighborhood Collector**	**Between Arterial and Local Street**	**Between Collector Street and Collector Street**	**Between Collector Street and Neighborhood Collector**	**Between Collector and Local Street**	**Between Neighborhood Collector and Local Street**	**Between two adjacent Local Streets**
Measured along an Arterial Street	1320	800	600	300	600	300	150	150	150
Measured along a Collector Street	800	800	600	300	600	300	150	150	150
Measured along a Neighborhood Collector Street	800	600	300	300	300	150	150	150	150
Measured along a Local Street	600	600	300	300	300	150	150	150	150
Note: With regard to public intersection spacing standards, the same distances apply to both major arterial and minor arterial streets. In this table, the term "arterial" applies to both major arterial and minor arterial streets.									

A lesser distance between intersections may be allowed, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the reduction in intersection spacing will not pose a safety hazard.

In addition, the following table from the Oregon City Transportation System Plan (TSP) also provides intersection spacing standards, which in some cases appear to differ slightly from those in OCMC 12.04.040.

Table 5-7. Minimum City Street Intersection Spacing Standards

Functional Classification	Major Arterial	Minor Arterial	Collector	Neighborhood Collector	Local Street
Major Arterial	2 miles	1 mile	¼ mile	1,000 feet	500 feet
Minor Arterial	1 mile	½ mile	1,000 feet	800 feet	400 feet
Collector	¼ mile	1,000 feet	800 feet	600 feet	300 feet
Neighborhood Collector	1,000 feet	800 feet	600 feet	500 feet	200 feet
Local Street	500 feet	400 feet	300 feet	200 feet	150 feet

*ODOT access standards supercede these standards on ODOT facilities.

The applicants propose the following adjustment to the intersection spacing standards for the intersection of proposed Columbine Street (local) and Front Avenue (collector). Instead of the 300-foot spacing standard between local (Columbine) and arterial (Holcomb Boulevard) streets along a collector (Front Avenue), applicants request a 145-foot spacing. As shown on the

proposed site plans, spacing between proposed Columbine Street and Holcomb Boulevard is approximately 145 feet along Front Avenue. Note that proposed Columbine Street will be in the same location as the existing southern intersection of C Street and Front Avenue. Also note that the diagonal configuration of Holcomb Boulevard through the rectangular street grid makes it infeasible to meet the spacing standards for proposed Columbine Street on both the east and west sides of the project site. While the intersection of proposed Columbine Street with Apperson meets the spacing standards, it is not possible to connect Columbine Street through the site, following the rectangular street grid, and still meet the intersection spacing standards for Front Street. The applicants propose that providing two east-west through connections on the project site is more important to providing an efficient, safe transportation system than meeting the intersection spacing standard on Front Street.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of intersection spacing standards is to maintain efficient traffic flow, minimize turning conflicts at intersections, and provide adequate queuing capacity at intersections.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: No Goal 5 resources are near the intersections of Front Avenue and Holcomb or Front Avenue and the proposed Columbine Street. The adjustment would have no effect on Goal 5 resources.

4. Any impacts resulting from the adjustment are mitigated; and

Response: There is an existing intersection (C Street/Front Avenue) at the location of the proposed Columbine Street/Front Avenue intersection, so the adjustment will not create a new impact to be mitigated. Although site redevelopment would generate more trips than the current Clackamas Heights development, street connectivity and the availability of alternative routes using different streets are also greatly improved. Traffic impacts, including those related to the proposed Columbine/Front intersection are addressed in the traffic impact study. Because the proposed Columbine would “T” into Front Avenue, there would be no through movement at the intersection. The addition of the proposed Rose Street and the proposed street connecting Columbine and Holcomb Boulevard provide additional alternatives to southbound travel on the Columbine/Front intersection. See the Traffic Impact Study for further explanation of traffic impacts.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: The intersections of Front Avenue and Holcomb or Front Avenue and the proposed Columbine Street are not within an environmental zone. The adjustment would have no effect on environmental resources.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: Although the proposed adjustment is inconsistent with TSP spacing standards for local and arterial intersections on a collector, the overall street grid design of the Concept Development Plan, including two east-west street connections through the site, is consistent with TSP and Comprehensive Plan direction for improved connections and gridded streets (Plan Goals 2.4, 12.3, 12.6 [Policy 12.6.4].

Access spacing standard (Oregon City Street Design Standards). *According to the Oregon City TSP (pages 5-35 and 5-36), "the Oregon City Street Design Standards manual details the recommended City of Oregon City access spacing standards for traffic signal spacing, non-traversable median spacing, public intersections spacing, and private access driveway spacing…. A variance process for City Standards, similar to that described above for the ODOT access management plan, should consider land use needs on a case-by-case basis during development review."*

The applicants propose access spacing below the *minimum access spacing* standards (measured from centerline to centerline) found in the *Oregon City Design Standards Manual* at three access points along the streets identified below:

Holcomb Boulevard, minor arterial street with 150-foot spacing standard:

- Access spacing is approximately 140 feet between the proposed retail parking lot access/driveway along Holcomb Boulevard and the proposed street connecting to Holcomb Boulevard. It should be noted that there are a number of existing driveways nearby along Holcomb with spacing less than 150 feet. The Concept Development Plan separates the driveway from the proposed street as much as possible while still meeting design standards for the parking lot driveway and the proposed street; however, access spacing is limited by the length of site frontage along Holcomb Boulevard. The parking area would serve the proposed neighborhood retail space only, which will face Holcomb Boulevard to maximize its visibility. Because only about six parking spaces would be provided for the retail space, the number of vehicles turning in and out of the parking area would be minimal; on-street parking is also provided on the proposed north-south street adjacent to the use. In addition, the retail space will be connected to other uses on the project site by pedestrian paths to encourage walking to the retail space. As noted in the Traffic Impact Study for the proposed Conceptual Development Plan, traffic volumes at the access are relatively low.

- Access spacing is approximately 60 feet between the existing western driveway to Steve's Select Market and the proposed street connecting to Holcomb Boulevard. The site's frontage on Holcomb Boulevard is less than 200 feet and the proposed street runs along the eastern edge of the site in order to allow development on the remainder of the parcel. As noted in the Traffic Impact Study, traffic volumes at both accesses are low.

Front Avenue, collector street with 100-foot access spacing standard:

- Although the proposed Columbine Street will join Front Avenue approximately 145 feet north of Holcomb Boulevard, this intersection is 75 feet north of the driveway to the Quick Stop Market. Although the distance between Columbine Street and the Quick Stop Market driveway will be less than 100 feet, this is similar to current conditions where the existing C Street intersects Front Avenue 70 feet north of the Quick Stop Market driveway. Unlike the existing C Street, the proposed internal street grid will increase connectivity. As noted in the Traffic Impact Study, volumes at both accesses and on Front Avenue are relatively low and conflicts are not anticipated; the Front Avenue/Holcomb Boulevard intersection will operate at LOS "B" during peak hours and the 95th-percentile southbound queues on Front Avenue are 25 feet or less.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of access spacing is typically to maintain efficient traffic flow and minimize turning conflicts from vehicles entering and exiting the street.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: The adjustment would allow development of an access driveway and a new street connecting to Holcomb Boulevard within the NROD overlay. However, as explained in Section 2.6 of this narrative, the applicants request an exemption to the NROD standards because of existing conditions.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Potential impacts to traffic flow on Holcomb Boulevard are mitigated by: locating the driveway as far away from the proposed street as possible within the limited frontage on Holcomb Boulevard; providing pedestrian connections to encourage pedestrian trips to the retail space; and providing a small parking lot (approximately 6 spaces), thereby limiting the number of cars moving in and out of the parking lot. In addition, the entry to the ECEFWC is planned to be on the north side of the building where adequate parking is provided for that use, which will discourage use of the retail parking lot for anything other than the neighborhood retail.

Potential impacts to traffic flow on Front Avenue are mitigated by the multiple east-west connections provided between Apperson Boulevard and Front Avenue, allowing more diverse distribution of vehicle traffic onto the roadway network compared to the existing C Street, where vehicle traffic has no alternative to use except Front Street; the Traffic Impact Study notes that the Front Avenue/Holcomb Boulevard intersection will operate at LOS "B" during peak hours and the 95th-percentile southbound queues on Front Avenue are 25 feet or less.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: The adjustment would allow development of an access driveway and a new street connecting to Holcomb Boulevard within the NROD overlay. However, as explained in Section 2.6 of this narrative, the applicants request an exemption to the NROD standards because of existing conditions.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment is consistent with the Comprehensive Plan in that it allows for development of a north-south street connection through the site (Plan Goals 2.4, 12.3, 12.6 [Policy 12.6.4] and also allows development of neighborhood retail in MUC-1 that would be more viable with frontage and access from Holcomb Blvd than it would likely be without such frontage and access (Goals 2.5, 9.5). The adjustment also allows multiple east-west street connections to be provided between Apperson Boulevard and Front Avenue (Plan Goals 2.4, 12.3, 12.6 [Policy 12.6.4]. Given that Holcomb Boulevard runs at an angle (diagonal) to the east-west streets north of it, providing an east-west street connection north of Holcomb at Columbine Street limits the amount of access spacing possible.

OCMC 12.04.045 Street design – Constrained local streets and/or rights-of-way. *For constrained local streets, the street design standards are for a pavement width of 20 to less than 32 feet and a minimum right-of-way width of 30 to 40 feet. The standard width for constrained streets is 20 feet of paving with no on-street parking and 28 feet with on-street parking on one side only.*

The applicants are submitting a street design plan (Sheet C2.1) as an alternative to the above street design standards, as permitted by 12.04.025(B). All proposed streets are local streets. The street designs facilitate safe, multi-modal travel within the site and improve the site's connectivity to the surrounding neighborhoods and transportation facilities.

The proposed Rock and Rose streets do not meet the minimum paved width standard for constrained streets; they meet the minimum right-of-way width standard. The proposed streets would have a paved width of 26 feet with on-street parking on both sides. Sheet C2.1 shows street cross-sections.

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of the paved width standards is to provide an adequate paved width for safe travel, including travel for emergency vehicles. The narrower paved width standard for constrained streets acknowledges that a narrower street may be appropriate for some situations.

Rose and Rock streets are bordered by residences and the community park, where low traffic speeds are desirable to provide safety for pedestrians and bicyclists, including children. The adjustment would likely result in lower traffic speeds on the constrained streets; narrow streets with on-street parking reduce travel speeds. Consequently, through traffic would be discouraged from using the streets, which is appropriate for maintaining pedestrian and bicycle safety.

The applicants have consulted with Bob Cullison, City engineer, and with the fire department regarding the proposed design. The fire department's concern was about accessibility for fire

vehicles. In response to the department's concerns, the applicants prepared and submitted a diagram showing fire access (see Figure 4) and, at the department's request, buildings more than 150 feet from a fire access will be sprinklered.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: None of the constrained streets lie within the NROD.

4. Any impacts resulting from the adjustment are mitigated; and

Response: The adjustment would likely result in lower traffic speeds on the constrained streets; narrow streets with on-street parking reduce travel speeds. Consequently, through traffic would be discouraged from using the streets, which is appropriate for maintaining pedestrian and bicycle safety. Proposed Columbine Street meets the pavement width standard, providing an appropriate alternative for east-west through traffic. The adjustment would limit access for fire trucks along the constrained streets; the impact will be mitigated by sprinklering buildings that are more than 150 feet from a fire access.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: None of the constrained streets lie within the NROD.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment allows for a narrower paved width, which will have less impervious area than a standard street and therefore contribute less stormwater runoff (Plan Policy 11.4.2). The narrower width also provides a traffic-calming effect—contributing to public safety (Goal 12.5; Policies 12.5.3, 11.10.3). Safety concerns related to limited fire access are mitigated. The narrower streets proposed provide a more pedestrian/bicycle-friendly experience (Plan Goals 2.4, 12.1, 12.3; Policies 12.1.1, 12.1.4 as well as a more compact, efficient site plan (Plan Goals 2.1, 13.1).

As described above, the public easements along the streets provide adequate space for sidewalks and wide planting strips, which will incorporate bioswales to provide part of the on-site stormwater facilities. Pedestrian improvements and on-site stormwater treatment that incorporates low-impact design are both consistent with Oregon City's long-term goals in the Comprehensive Plan (Goals 2.4, 5.4 [Policy 5.4.16], 6.2, 11.4, 11.6, 12.1, 12.3, 12.7).

OCMC 12.04.100 - Street design—Alleys. *Public alleys shall be provided in the following districts R-5, R-3.5, R-2, MUC-1, MUC-2 and NC zones unless other permanent provisions for*

private access to off-street parking and loading facilities are approved by the decision maker. The corners of alley intersections shall have a radius of not less than ten feet.

The applicants are proposing private alleys, rather than public, to access off-street parking and loading facilities.

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of the regulation is to have off-street parking located behind buildings and to reduce the number of curb cuts/driveways to access off-street parking. Public alleys would be publicly maintained. Substituting private alleys for public ones provides the same layout (off-street parking behind buildings with shared access to the parking areas). Because the applicants propose private streets, rather than public, it is logical to have private alleys rather than public. The alleys would be privately maintained. Fire vehicles will have some access into the alleys, as shown on Figure 4.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides "eyes on the street" to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: None of the alleys lie within the NROD.

4. Any impacts resulting from the adjustment are mitigated; and

Response: The adjustment would not result in negative impacts. Alleys will be privately maintained to assure they are free of obstructions for vehicle travel.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: None of the alley intersections lie within the NROD.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: By including alleys in the Concept Development Plan, the proposed development maintains a compact urban form and enhances a vibrant streetscape. That demonstrates consistency with Comprehensive Plan Goals 2.1 (Efficient Use of Land) and 2.4 (Neighborhood Livability).

OCMC 16.12.045 Building sites—Minimum density. *All subdivision layouts shall achieve at least eighty percent of the maximum density of the base zone for the net developable area as defined in Chapter 17.04.*

Applicants request an adjustment to the minimum density standards in consideration that HACC proposes to own and manage most of the proposed dwellings as a public housing development on a single parcel. Subdivisions will be proposed for parts of the site that will be developed with

homeownership units, likely along Front Avenue and Apperson Boulevard, in Phases 2 and 3 of the development plan. As shown on Figure 2 (anticipated phasing), the Concept Development Plan anticipates up to 27 homeownership units would be developed, each on a separate lot.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: Currently, the site does not meet the minimum density standard. It has one lot (TL 700) in the R-3.5 zone comprising 846,323 square feet (including the land area occupied by A, B, C, and D streets). The Morrow Parcels in the MUC-1 zone meet the minimum density standard in the zone, as there is no minimum lot size standard for that zone.

The purpose of the minimum density standard is to help ensure that land is developed efficiently, helping to achieve regional goals for minimizing sprawl by encouraging compact development, where appropriate. For residential subdivisions, the purpose is to ensure that lots are sized appropriately so that, if one residence is developed per lot (which is typical), the resulting number of houses is at least 80 percent of that allowed by the zone.

Although the subdivisions proposed in the Concept Development Plan would not achieve the minimum density for the number of lots, as required by the standard, the development would achieve or exceed the minimum number of dwelling units that can be built on the site. Once all phases of the master plan are developed, the development would achieve the minimum density required. Maximum density in the R-3.5 zone (TL 700) is one unit per 3,500 square feet. As shown in Table 11 of this narrative, 239 units are allowed on TL 700 once the existing public streets have been vacated and additional right-of-way along the bordering public streets has been granted. To further increase the number of units that can be developed on the site, the applicants request an on-site density transfer from the MUC-1 portion of the site to increase the number of units on TL 700 to up to 283 units. Granting the adjustment will allow HACC to redevelop the site and ultimately achieve the purpose of the standard.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides “eyes on the street” to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: In the portion of the site zoned R-3.5, a sliver of land has a NROD overlay. The applicants are requesting an exemption to the NROD standards. In addition, nearly all of the land within the NROD will be dedicated to the City for public right-of-way to provide additional street improvements on Apperson Boulevard Any remainder would be set aside in a public easement for the proposed community vegetable garden.

4. Any impacts resulting from the adjustment are mitigated; and

Response: No impacts are anticipated; the site would be developed to achieve the purpose of the minimum density standard once all development phases are complete.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See response to #3 (Goal 5 resources), above and Section 2.6 of this narrative, which explains why the NROD overlay is not appropriate for the site.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: Once all development phases are complete, the development will meet the purpose of the minimum density standard and provide medium-density, affordable housing for Oregon City residents. According to the Comprehensive Plan, MR is "residential developments with dwelling unit types such as single-family units, rowhouses, and townhouses…More intensive new and redeveloped residential construction can be built at medium densities under certain circumstances." The proposed residential development, overall, is medium density. It incorporates a mix of housing types including single-family detached and attached, "stacked flats," carriage units, and multi-family buildings (Goal 10.1, Policies 10.1.3, 10.1.4). The adjustment allows for development of some for-sale, single-family units as well as a significant number of public affordable (rental) housing units.

The adjustment supports development of affordable for-sale and public rental housing, which is consistent with Goal 10.2, Supply of Affordable Housing.

OCMC 17.16.040.A.1. - Minimum Lot Areas in R-3.5 zone, Residential Uses *standard is 3,500 square feet per unit).*

Applicants seek a 60% reduction in lot size (minimum 1,800 square feet) for homeownership units. Applicants also request an on-site density transfer from the MUC-1 portion of the site to the R-3.5 portion of the site, allowing for additional residential units on the R-3.5 portion than allowed by the minimum lot area standard. In effect, the density transfer would decrease the minimum lot area, if 283 units are developed, to 2,964 square feet per residential unit. More detail about the on-site density transfer is presented below.

Based on input received during the public involvement process, both the advisory group to the Concept Development Plan and the local community support maximizing the number of units at Clackamas Heights as well as providing services on the Morrow Parcels.

One reason the applicants request this adjustment is to encourage development of affordable for-sale housing. Smaller lot sizes for the homeownership units will help make the properties more affordable to potential homebuyers. The cost of land is part of the cost of buying a home; smaller lots equate to more affordable homeownership units.

A second purpose of the for-sale lots/residences is to contribute some proceeds of the sales to help finance the public housing on the site. By reducing the lot size of the homeownership units, those units require a smaller portion of the site than if the same number of units were developed on 3,500-square-foot lots – and leaves a greater portion of the site available for development for public housing, which is HACC's primary objective.

Additional affordable housing is needed in Clackamas County according to the County's April 2009 Three-Year Consolidated Plan. According to the research in the Plan, in 2000 there were about 869 homeowners without a mortgage that had a cost burden and another 463 with a severe cost burden. There were another 11,883 homeowners with a mortgage that had a cost

burden and 5,394 with a severe cost burden. A household experiences a severe cost burden if 50 percent or more of household income is devoted to housing costs. Severely cost burdened homeowners with a mortgage are at risk of homelessness. Also, according to the research, there were approximately 12,915 homeowners experiencing unmet housing needs.

As the population grows over the next 20 years, it is estimated that the number of homeowners with incomes less than 30 percent of median family income through 80 percent of median family income will increase by 19,477 by 2030. Even as early at 2012, there will be some 33,460 homeowners that will have one or more housing problems, consisting of cost burdens, overcrowding, or incomplete kitchen or plumbing facilities.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: One purpose of the minimum lot size is to allow more compact, efficient development of single-family and duplex units than is allowed in the other single-family residential zones. Another purpose is to maintain sufficient space on the lot for reasonable setbacks between buildings – allowing light and air between structures for the benefit of residents.

The adjustment would allow for even more compact, efficient single-family residential development on the site. However, though the proposed homeownership lots are smaller than the standard, the housing developed on the lots will be appropriate for the lot size, and the lot coverage maximum will be maintained at 55% coverage for structures over 200 square feet. One reason the applicants request this adjustment is to encourage development of affordable for-sale housing. Smaller lot sizes for the homeownership units will help make the properties more affordable to potential homebuyers. The cost of land is part of the cost of buying a home; smaller lots equate to more affordable homeownership units.

The proposed housing type for the for-sale units is attached single-family. Parking and garages serving the units would be accessed via a rear alley; numerous curb cuts would not be required along streets, and a pleasing streetscape would be created. Utilities can be more efficiently provided to dwellings on smaller lots than on larger ones.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides “eyes on the street” to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 of this narrative.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Potential impacts of the smaller lot size will be mitigated by developing housing appropriate for the lot size. The lot coverage maximum will be maintained at 55% coverage for structures over 200 square feet. Adequate spacing between buildings will be maintained.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 of this narrative.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment would allow the applicants to develop more housing on the site than would be possible if the lot size standard were met. That is supported by the comprehensive plan. Goal 10.2 of the Oregon City Comprehensive Plan is, "Provide and maintain an adequate supply of affordable housing." The adjustment would allow for even more compact, efficient single-family residential development on the site (Goal 2.1, Efficient Use of Land). One reason the applicants request this adjustment is to encourage development of affordable for-sale housing on the project site, alongside other housing types (Goal 10.1, Policy 10.1.4). Smaller lot sizes for the homeownership units will help make the properties more affordable to potential homebuyers (Goal 10.2). The project would redevelop an existing residential site – land committed to residential use will be retained as residential and used for affordable housing (Policy 10.2.1).

On-Site Density Transfer

The applicants also request approval of an on-site density transfer from the MUC-1 portion of the project site to the R-3.5 portion of the site. The on-site density transfer would not propose additional units beyond the total allowed on the overall development site. A Concept Development Plan, or Master Plan review, enables the applicant to propose a comprehensive approach to redevelopment. To achieve a master plan meeting project goals, the applicants seek to reallocate the potential development of approximately 44 dwelling units from the Morrow Parcels to TL 700. The main purposes of the density transfer are:

- to allow HACC to maximize the number of units developed in Clackamas Heights to provide much-needed affordable housing to Clackamas County residents,
- to preserve the Morrow Parcels for service (early childhood education/childcare and family wellness center) and retail space, and
- to use the master planning process to provide flexibility in site development..

More affordable housing is needed in Clackamas County, as evidenced by HACC's long public housing and Section 8 waiting lists. Currently there are 1,410 and 5,362 households on the public housing and Section 8 waiting lists, respectively. Moreover, the waiting lists have been closed and have not accepted new applicants since February 2, 2009. The need for more affordable housing in Clackamas County is also documented in Clackamas County's Three-Year Consolidated Plan (Final Report, April 30, 2009). For example, the County Community Development Division conducted surveys about housing needs in late 2008. Survey responses indicated that the top three housing activities that would best benefit the county were: 1) development of affordable rental units, 2) development of affordable homeownership opportunities, and 3) rehabilitation of existing rental units to improve safety and quality. Similarly, affordable rental and for-sale housing were identified as the highest housing needs.

Goal 10.2 of the Oregon City Comprehensive Plan is, "Provide and maintain an adequate supply of affordable housing." Policy 10.2.2 of the plan supports the proposed density transfer. It states, "Allow increases in residential density (density bonuses) for housing development that

would be affordable to Oregon City residents earning less than 50 percent of the median income for Oregon City."

In addition to maximizing residential development on the site, while still providing space for service and retail uses, the proposed Master Plan will accommodate HACC's objectives and comprehensive site goals for the parcels in the Concept Development Plan, including:

- Preserve existing large trees on the project site.
- Create a new on-site street layout that will provide access through the entire street and connect Harley Street with Holcomb Boulevard
- Provide retail space on Holcomb Boulevard to serve the local community and, potentially, encourage future redevelopment within the MUC-1 zone along Holcomb.

A density transfer would achieve these purposes. Input received during the public involvement process showed that both the advisory group to the Concept Development Plan and the local community support maximizing the number of units at Clackamas Heights and providing services on the Morrow Parcels.

Theoretically, more than 44 units could be developed on the Morrow Parcels if HACC wanted solely to maximize the number of dwelling units and not provide space for service and retail use. However, HACC's comprehensive objectives for the Morrow Parcels and entire site are important elements of the Concept Development Plan and are supported by the public.

Table 11 describes potential as-of-right development allowed on each portion of the site and the totals. The potential development capacity scenario for the Morrow Parcels was determined by the zoning envelope study shown on Figure 6. It shows that at least 44 residential units could be accommodated on the Morrow parcels, in addition to the proposed 14,000-square-foot ECEFWC and 2,000 square feet of neighborhood retail. In the scenario used to develop Table 11, the redevelopment area in its entirety will accommodate at least 283 residential units, along with the community center proposed on TL 700.

Table 11. Proposed Development with On-Site Density Transfer

Tax Lots	Tax Lot 700	Tax Lots 400 & 500	TOTAL FOR SITE
Zoning designation	R-3.5	MUC-1	
Gross Land Area[1]	846,323 sf	81,708 sf	**928,031 sf**
Public ROW Area [2]	7,509 sf	2,743 sf	**10,252 sf**
Net Development Area (i.e. excluding public ROW)	838,814 sf	78,965 sf	**917,779 sf**
Potential Allowed Development [3]	239 residential units (1 unit per 3,500 sf) 6,000 sf community center/Clackamas Heights property management 200 sf community policing office within multi-family building	44 residential units 2,000 sf retail 14,000 sf ECEFWC	**283 residential units** 6,000 sf community center/Clackamas Heights property management 200 sf community policing office; within multi-family building 2,000 sf retail 14,000 sf ECEFWC
Proposed development	**283 residential units** 6,000 sf community center/Clackamas Heights property management 200 sf community policing office within multi-family building	**0 residential units** 2,000 sf retail 14,000 sf ECEFWC	**283 residential units** 6,000 sf community center/Clackamas Heights property management 200 sf community policing office; within multi-family building 2,000 sf retail 14,000 sf ECEFWC

[1] Gross land area includes land currently in public right-of-way (on-site streets) that would be vacated.

[2] Additional public rights-of-way will be dedicated along existing abutting public streets: Holcomb, Apperson, Front, and Gain per City street standards. The land to be dedicated is not included in the net development area.

[3] Calculated for Net Development Area.

Figure 6. On-Site Density Transfer Diagram

(three pages)

Additional objectives of the Concept Development Plan are driving the applicants' request for an on-site density transfer:

- Keep all residential development on TL 700 to contribute to sense of community (and not isolate multi-family residents on Morrow Parcels, which is the likely alternative to siting the multi-family buildings on TL 700).
- Keep the Concept Development Plan consistent with existing Oregon City zoning and comprehensive plan designations.
- Use the master planning process to provide flexibility in site development.

Additionally, the third objective above is driven by the difficulty in obtaining public funding/financing for mixed-use development. Because of the nature of the funding sources available and their associated requirements, proposing to mix the ECEFWC building with residential units above could further limit the feasibility of that project. HACC expects that public funding could not be obtained for housing on the Morrow Parcels if it were included in a mixed-use situation, and the parcels may not be developed as part of the Concept Development Plan. If housing were proposed on the Morrow Parcels, then the proposed service and retail uses likely could not be developed as part of the site redevelopment. Providing services and retail as part of the mixed-use development is supported by the project advisory board and the public.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: One purpose of the minimum lot size is to allow more compact, efficient development of single-family and duplex units than is allowed in the other single-family residential zones. Another purpose is to maintain sufficient space on the lot for reasonable setbacks between buildings – allowing light and air between structures for the benefit of residents and to meet fire code standards.

The adjustment would allow for even more compact, efficient single-family residential development on the site. However the housing developed on the lots will be appropriate for the lot size, and the lot coverage maximum will be maintained at 55% coverage for structures over 200 square feet. All buildings will be separated by at least 10 feet.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides "eyes on the street" to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 of this narrative.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Potential impacts of the higher density will be mitigated by developing housing appropriate for the lot size and by providing common parks and open spaces throughout the site. Single-family dwellings will be placed along the perimeters of the site, along the public

streets to better match with surrounding single-family development; higher density housing types will be placed in the interior of the lot. The lot coverage maximum will be maintained at 55% coverage for structures over 200 square feet. Adequate spacing between buildings will be maintained.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 of this narrative.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment would allow the applicants to develop more housing on the site than would be possible if the lot size standard were met. That is supported by the comprehensive plan. Goal 10.2 of the Oregon City Comprehensive Plan is, "Provide and maintain an adequate supply of affordable housing." The adjustment would allow for site redevelopment with even more compact, efficient development on the site (Goals 2.1 and 13.1 and Policy 11.1.4) and for development of a diversity of housing types (Policies 10.1.3 and 10.1.4). The adjustment is also supported by Policy 2.1.3: "Encourage sub-area master planning for larger developments or parcels, including redevelopment, where it may be feasible to develop more mixed uses … with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision." The project would redevelop an existing residential site – land committed to residential use will be retained as residential and used for affordable housing (Policy 10.2.1). Policy 10.2.2 of the plan supports the proposed density transfer. It states, "Allow increases in residential density (density bonuses) for housing development that would be affordable to Oregon City residents earning less than 50 percent of the median income for Oregon City."

The proposed community policing office will contribute to safety on the site and in the nearby neighborhood (Goal 11.10 and Policy 11.10.5). Safety is also enhanced by providing street connections through the site.

The adjustment will also help encourage service and retail development on the Morrow Parcels, which might not be developed as part of the concept plan otherwise, because of funding limitations. Uses proposed on Morrow Parcels, which front on Holcomb Boulevard (an arterial and transit corridor), will be higher-intensity and include neighborhood retail and service (Goals 2.3, 2.4, 2.5, 9.5, 12.1, and 13.2). The proposed ECEFWC is consistent with Policy 2.4.5, which is intended to promote development of "senior and childcare facilities…that serve the needs of the immediate area and the residents of Oregon City."

OCMC 17.16.040.E. - Minimum Required Setbacks in R-3.5 Zone,

3. Interior side yard
Detached unit, five feet minimum setback
Attached unit, seven feet minimum setback on the side that does not abut a common property line.

4. Corner side yard, ten-foot minimum setback,

7. Attached and detached garage, twenty feet minimum setback from the public right-of-way where access is taken, except for alleys. Detached garages on an alley shall be setback a minimum of five feet.

Note that all setbacks are measured from the edge of a public right-of-way or the edge of a proposed public access easement. Applicants seek adjustments to allow a minimum of 5 feet of interior side yard setback (from the property line) between attached units, rather than the minimum of 7 feet required by the standard.

Applicants seek an adjustment to the corner side yard setback to allow for an 8-foot setback from the edge of public ROW or public access easement. No garages are proposed on public rights-of-way or private streets. However, both attached and detached garages/covered parking may be developed on alleys. Applicants request an adjustment to the setback standard to allow garages/covered parking to be set back a minimum of two feet from the edge of a proposed access easement (alley), which would equate to four feet from the edge of alley pavement. Proposed alleys would have a 20-foot-wide easement and a 16-foot paved width.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The applicants assume that the purpose of the regulations is to provide open space for relaxation and health, and to avoid an overcrowded feeling in the development. The Concept Development Plan sets aside large, useable areas of common open space/parks, as well as smaller pocket parks, to meet the purpose of the regulations and to maintain a safe distance between buildings. The applicants are proposing a building spacing (at least 10 feet between buildings) that is consistent with building code requirements.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides "eyes on the street" to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, no residential units are proposed within the NROD overlay, so the adjustment would have no effect on Goal 5 resources.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Impacts of less open space between individual units would be mitigated by the provision of open spaces and parks elsewhere on the project site.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, no residential units are proposed within the NROD overlay, so the adjustment would have no effect on environmental resources.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment would allow for even more compact, efficient residential development on the site (Goals 2.1 and 13.1) while preserving open spaces between buildings and meeting minimum building requirements for space between buildings, which aids in fire protection (Goal 11.9).

OCMC 17.29.050.D. - Dimensional standards—MUC-1. *Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every one foot of building height over thirty-five feet.*

Applicants request an adjustment to reduce the minimum interior and rear yard setback abutting a residential zone to 10 feet.

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The applicants assume that the purpose of the regulations is to provide open space for relaxation and health, and to avoid an overcrowded feeling in the development. The Concept Development sets aside large areas of common open space/parks, as well as smaller pocket parks, to meet the purpose of the regulations.

Another purpose of the setback is to buffer residential development from potential conflicts with non-residential uses. The Concept Development Plan mitigates conflicts on the project site by locating the Community Center building and parking, non-residential uses, on the R-3.5 land adjacent to the MUC-1 land (see Sheet A1.01 and Sheet C0.1). The Concept Development Plan also anticipates that the non-residential development on TL 400 (MUC-1) would not exceed two stories in height, which mitigates impacts of shading and building mass. In addition, the proposed use in the building on TL 400, which is the ECEFWC, is unlikely to create conflicts with adjacent residential uses, in part because it would not operate in the evening or at night and in part because the primary users would be children and families.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: This is the only requested adjustment specific to development in the MUC-1 zone, although it relates to the adjacent R-3.5 zone. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, the NROD overlay does not cover any part of the site where MUC-1 abuts the R-3.5 zone, so the adjustment would have no effect on Goal 5 resources.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Impacts of less open space between individual units would be mitigated by the provision of open spaces and parks elsewhere on the project site. Mitigation is also provided by keeping the non-residential uses on the Morrow Parcels at no more than two stories high.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts

on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, the NROD overlay does not cover any part of the site where MUC-1 abuts the R-3.5 zone, so the adjustment would have no effect on environmental resources.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment would allow for even more compact, efficient residential development on the site (Goals 2.1 and 13.1) while preserving open spaces between buildings and meeting minimum building requirements for space between buildings, which aids in fire protection (Goal 11.9). The adjustment would allow development of the MUC-1 portion of the site with non-residential uses allowed in the MUC-1 zone and consistent with the MUC comprehensive plan designation and Plan Goals 2.3, 2.4, 2.5, 9.5, 12.1, and 13.2. Developing residential uses in the MUC-1 zone is not feasible in the Concept Development Plan because of public funding limitations, as described under the On-Site Density Transfer adjustment.

OCMC 17.20.050 - Residential design standards, Main Entrances. *The main entrance for each structure shall:*
A. Face the street; or
B. Be at an angle up to 45 degrees from the street;

Applicants seek an adjustment to allow lot configuration so that buildings can front onto public access easements and parks/open spaces within the site because no internal public streets are proposed. The proposed public access easements would apply to the private streets, alleys, and parks/open spaces, as identified on Figure 1.

Responses to Approval Criteria

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purposes of the regulation are to provide "eyes on the street" for safety and to encourage active pedestrian use of the street, as well as to provide better visibility and security for residences. Granting the adjustment meets these purposes because all residential units will face an area open to the public (with public access easements) and designed for regular public use—the on-site streets, alleys, and parks/open spaces. Where units front an open space, pedestrian paths are proposed along the frontages (see Sheets A1.01 and T1.3) to encourage interaction among neighbors.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: The applicants are requesting numerous adjustments. The cumulative effect of the adjustments is to allow redevelopment of the site to provide non-residential uses that serve the proposed housing and the surrounding area while also allowing development of medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and encourages a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: No residential main entrances are proposed within the NROD overlay. The adjustment would have no effect on Goal 5 resources.

4. Any impacts resulting from the adjustment are mitigated; and

Response: No negative impacts are anticipated because all residential units will face a private street or other area with a public access easement to provide safety, visibility, and security.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: No residential main entrances are proposed within the NROD overlay. The adjustment would have no effect on environmental resources or resource values.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The adjustment will allow for efficient development of the site (Goals 2.1 and 13.1) to medium-density residential that includes a variety of housing types (Goal 10.1, Policies 10.1.3 and 10.1.4) while preserving open spaces and enhancing public safety and security. It will enhance neighborhood livability (Goal 2.4) by providing a more active, vibrant community that encourages neighbor interactions (Policy 2.4.2). It will also enhance the applicants' ability to maximize the number of affordable housing units, including homeownership units, at Clackamas Heights (Goal 10.2).

OCMC 17.54.010.3. – Accessory buildings and uses. *One accessory structure with a building footprint in excess of six hundred square feet may be approved by the planning division. An accessory structure footprint in excess of six hundred square feet must meet the setback requirements of the district in which it is located, and must also meet the following provisions …*

c. The building footprint of the accessory structure shall not exceed the building footprint of the primary structure. In no case may the accessory building footprint exceed eight hundred square feet.

d. The accessory structure shall not exceed the height of the primary structure and shall be located behind the front building line of the primary structure.

"Accessory building" means a detached structure subordinate in size and use, but located on the same lot as, a principal building. The Conceptual Development includes covered parking areas/garages; each incorporates four parking spaces and one carriage unit above. The Detailed Development may include a different configuration for covered parking and carriage units, but it will likely include something similar that will meet the definition of "accessory building."

The accessory buildings would be on the main portion of TL 700, which will comprise roughly 18 acres (assuming the for-sale units are developed as shown on the Concept Development Plan). Each accessory building is intended to provide covered parking for multiple units. Because several accessory buildings are proposed, the applicants request an adjustment to standard 3., which allows one accessory structure per lot. The proposed accessory buildings will meet the setback standards, except where adjustments to the standards may apply.

Each accessory building proposed in the Conceptual Development Plan incorporates four covered parking spaces and one carriage unit above, and is approximately 46 feet by 20 feet (920 square feet). The applicants request an adjustment to standard 3.c. for the larger footprint. No accessory structures are proposed that would exceed the building footprint or height of the

primary structures. Sheet A1.01 shows that most of the accessory structures will be located behind the front building line of the primary structures. However, the applicants may propose accessory structures that are even with the front line of the primary structures to provide the carriage units on the second story of the accessory structure with a better connection to the street, which will require an adjustment to standard 3.d.

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Response: The purpose of the regulation is to prevent an accessory structure of over 600 feet from being the dominant structure on a lot, that is, to assure that it is secondary to the primary structure and use of the lot. Accessory structures should be smaller than the primary structures and should serve only the land use of the lot on which they are located.

The proposed development is not typical in that numerous primary residential structures are proposed on one lot, which will be owned and maintained by HACC. The number of accessory structures with footprints larger than 600 square feet will be fewer than the number of primary structures on the lot (TL 700). The garages/covered parking buildings will serve only the residential uses on the lot. Because the accessory structures will be smaller than the primary structures and will serve only the residences on TL 700, they are secondary to the primary structures/use and meet the purpose of the regulation.

To maximize the number of units on TL 700 while maintaining a medium-density residential "feel" on the lot, the applicants propose carriage units above the garages/parking in the accessory buildings. The proposed accessory structures exceed the maximum-800-square-foot standard in order to provide a dwelling unit of reasonable, though still small, size. The carriage units would be approximately 920 square feet. The first floor of each accessory building would incorporate 4 covered parking spaces plus a vestibule and stairway to the 2nd-story carriage unit. (Note: the carriage units do not meet the definition of "accessory dwelling units" in that they are not accessory to the single-family units proposed; plus, no carriage units are proposed on the single-family homeownership parcels.)

The Concept Development Plan shows that most of the accessory structures will be located behind the front building line of the primary structures. However, the applicants may propose accessory structures that are even with the front line of the primary structures to provide the carriage units with a better connection to the street, which meets other objectives of HACC and the City. The adjustment would help reinforce the status of carriage units as residences. All or nearly all of the carriage units will front onto a public access easement that is a private street, while the garages/covered parking will front onto alleys.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Response: Several adjustments are requested for development in the R-3.5 zone. The cumulative effect is to allow redevelopment of the site with medium-density, affordable housing in the R-3.5 zone in a manner that provides significant open space areas, adds transportation (auto, bicycle, pedestrian) connections through the site, and provides "eyes on the street" to encourage a safe environment and neighbor interactions.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, no accessory buildings are proposed within the NROD overlay, so the adjustment would have no effect on Goal 5 resources.

4. Any impacts resulting from the adjustment are mitigated; and

Response: Impacts of less open space between individual units would be mitigated by the provision of open spaces and parks elsewhere on the project site.

5. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable. (Ord. 03-1014, Att. B3 (part), 2003)

Response: See Section 2.6 of this narrative regarding the NROD overlay. Also, no accessory buildings are proposed within the NROD overlay, so the adjustment would have no effect on environmental resources.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and ancillary documents.

Response: The applicants have master planned the site in accordance with Policy 2.1.3 to create a development of multiple housing units and types on a large lot. The adjustment will allow for efficient development of the site (Goals 2.1 and 13.1 and Policy 11.1.4) and provide a variety of housing types, including carriage units (Goal 10.1, Policies 10.1.3 and 10.1.4). By combining covered parking with carriage units, the accessory buildings are particularly efficient in their use of land – they provide housing in an area that would otherwise be used only for parking. The adjustment will enhance neighborhood livability (Goal 2.4) by providing a more active, vibrant community that encourages neighbor interactions (Policy 2.4.2). The adjustment would help reinforce the status of carriage units as residences. The adjustment will also enhance the applicants' ability to maximize the number of affordable housing units on the site (Goal 10.2).

2.3 OCMC 17.16 – R-3.5 Dwelling District

17.16.020 Permitted Uses.

Uses permitted in the R-3.5 district are:

A. Two-family dwellings (duplexes);

B. Single-family detached residential units;

C. Single-family attached residential units (Row houses with no more than six dwelling units may be attached in a row);

D. Parks, playgrounds, playfields and community or neighborhood centers;

H. Accessory uses and buildings;

I. Family day care provider, subject to the provisions of Section 17.54.050;

J. Residential home per ORS 443.400

Response: The proposed development in the R-3.5 district (TL 700) includes duplexes, single-family attached units, parks, and a community center—all of which are listed as permitted in the R-3.5 district. Space for Clackamas Heights property management facilities is included in the community center building. The property management facilities are accessory uses to the residential because they would serve the residents and allow HACC to maintain the Clackamas

Heights property and residences. The property management facilities would occupy approximately 2,000 square feet of the larger community center building.

The Concept Development Plan also includes multi-family buildings and cottage units, which are allowed in the R-3.5 district under a master plan.

A community policing office (approximately 200 square feet) is proposed for inclusion in a multi-family building on the site. It would provide a small space for use by Oregon City police department staff on a part-time basis or as needed. Such a use was requested by residents and neighbors through their comments on the Concept Development Plan. It would be located near the community park and community center to have visibility both toward and from those facilities and is intended to enhance safety and security on the site. It is accessory to the main use in that it occupies only a small area and is intended to serve only the Clackamas Heights development.

17.16.035 Master Plans

The following are permitted in this district when authorized by and in accordance with the standards contained in Chapter 17.65.

A. Multi-family residential units

B. Cottage Housing

Response: HACC proposes to develop multi-family and cottage housing on TL 700. HACC is requesting approval of a Concept Development Plan, in accordance with Chapter 17.65, to allow development of those uses.

17.16.040 Dimensional Standards.

Dimensional standards in the R-3.5 district are:

A. Minimum Lot Area.

1. Residential uses, three thousand five hundred square feet per unit.
2. Non-residential uses, zero minimum;

Response: The applicants request adjustments for a reduction in the minimum lot size for the homeownership units as well as a density transfer to allow higher residential density on TL 700 than one unit per 3,500 square feet. Under the OCMC standard, 239 units are allowed on TL 700; the applicants propose to develop up to 283 units on TL 700. The proposed density transfer and objectives of the transfer are described in Section 1.6 of this narrative. Adjustments are described and the approval criteria addressed under OCMC 17.65.070 in this narrative.

B. Minimum lot width, twenty-five feet;

Response: The Conceptual Development Plan was developed with all potential lots at least 25 feet wide. Final lot layouts will be proposed at the Detailed Development Plan stage.

C. Minimum lot depth, seventy feet;

Response: The Conceptual Development Plan was developed with all potential lots at least 70 feet deep. Final lot layouts will be proposed at the Detailed Development Plan stage.

D. Maximum building height, two and one-half stories, not to exceed thirty-five feet;

Response: The Conceptual Development Plan was developed with maximum building heights not to exceed 35 feet. Final building designs will be proposed at the Detailed Development Plan stage.

E. Minimum Required Setbacks.

1. Front yard, five feet minimum setback,
2. Front porch, zero feet minimum setback,
3. Interior side yard,
   Detached unit, 5 feet minimum setback
   Attached unit, 7 feet minimum setback on the side that does not abut a common property line.
4. Corner side yard, ten-foot minimum setback,
5. Rear yard, fifteen-foot minimum setback,
6. Rear porch, ten feet minimum setback.
7. Attached and detached garages, twenty feet minimum setback from the public right-of-way where access it taken, except for alleys. Detached garages on an alley shall be setback a minimum of five feet.

Response: Lots and buildings in the Conceptual Development plan were developed in accordance with the above standards with three exceptions. The proposed density and mix of unit types, plus HACC's desire to preserve most existing trees, provide open spaces, and improve transportation connectivity, limit the ability to meet the side yard, corner yard, and garage setbacks from alleys. The applicants request adjustments to the standards to allow:

1) 8-foot minimum setback on corner side yards;

2) 5-foot minimum interior side yard setback for attached units (with a required minimum separation of 10 feet between buildings); and

3) garages set back two feet from the alley access easement boundary (four feet from alley pavement edge).

The adjustment approval criteria are addressed under OCMC 17.65.070 in this narrative.

F. Garage Standards: See Section 17.21 – Residential Design Standards.

Response: The standards of Chapter 17.21 for garages are in 17.21.090, Garages and accessory structures. The standards are:

A. Garages must be detached, side entry or rear entry. For side entry garages: the garage area shall not be located in front of the living area. Accessory structures shall be designed consistent with the primary residence. Consistency of design includes the use of similar roofing, siding, and trim. For the purposes of this section, detached garages may be connected by a breezeway but consequently, will be subject to the setbacks of the underlying zone.

B. Exemption: An exemption from subsection A. above may be granted by the community development director if topographic or existing lotting patterns prevent the ability to construct a detached, rear entry or side entry garage on-site or if the applicant proposing a design that the community development director believes mitigates the impact a front entry

attach garage has on the pedestrian environment. The alternate attached design shall not project farther than the living area and shall be limited to garage door widths of ten feet or less.

Response: Under the Concept Development Plan, garages/covered parking will be detached or attached on the side with access taken from the alley. All garage structures will have a carriage unit above them. The carriage unit will have a porch that faces a public access easement or street. The garages/covered parking and associated carriage units will be designed with an architectural character that is consistent with other residential buildings on the site. Designs will be submitted with the Detailed Development Plan.

The proposed carriage units are not considered accessory dwelling units, as none would be located on a single-family (i.e. homeownership) lot along with a single-family dwelling.

The applicants do not request an exemption to garage standard A, above.

G. Maximum Lot Coverage: The footprint of all structures 200 square feet or greater shall cover a maximum of 55 percent of the lot area.

Response: As anticipated by the Concept Development Plan, the maximum lot coverage for the overall project site will not exceed 55 percent. On the smaller lots to be developed with for-sale units, lot coverage will be a maximum of 55 percent. Lot coverage will be finalized in the Detailed Development Plan and will comply with Oregon City standards.

17.16.050 Single-Family Attached Residential Units and Duplex Units.

The following standards apply to single-family dwellings, in addition to the standards in Section 17.16.040.

A. Maintenance Easement. Prior to building permit approval, the applicant shall submit a recorded mutual easement that runs along the common property line. This easement shall be 10 feet in width. A lesser width may be approved by the Community Development Director if it is found to be sufficient to guarantee rights for maintenance purposes of structure and yard.

Response: The applicants will record maintenance easements, as required by this standard, when the Detailed Development Plan is proposed, if appropriate.

B. Conversion of Existing Duplexes. Any conversion of an existing duplex unit into two single-family attached dwellings shall be reviewed for compliance with the requirements in Section 16 for partitions, Section 17.16 and the State of Oregon One and Two Family Dwelling Specialty Code prior to final recordation of the land division replat. (Ord. 99-1027 §4, 1999)

Response: The applicants do not propose conversion of any duplexes to single-family attached dwellings.

2.4 OCMC 17.29 – MUC-1 Mixed Use Corridor

17.29.020 Permitted Uses--MUC-1 and MUC-2.

A. Banquet, conference facilities and meeting rooms; …

C. Child care centers and/or nursery schools; …

E. Health and fitness clubs; …

H. Offices, including finance, insurance, real estate and government; …

K. Parks, playgrounds, play fields and community or neighborhood centers; …

N. Residential units, multi-family;

O. Restaurants, eating and drinking establishments without a drive through;

P. Services, including personal, professional, educational and financial services; laundry and dry-cleaning;

Q. Retail trade, including grocery, hardware and gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores, and similar, provided the maximum footprint for a stand alone building with a single store or multiple buildings with the same business does not exceed sixty thousand square feet; …

U. Utilities: basic and linear facilities, such as water, sewer, power, telephone, cable, electrical and natural gas lines, not including major facilities such as sewage and water treatment plants, pump stations, water tanks, telephone exchanges and cell towers….

Response: At this time, the applicants anticipate developing an early childhood education and family wellness center (ECEFWC) plus supporting office space on the Morrow Parcels, which are designated MUC-1. Approximately 2,000 square feet of retail space is also proposed in the Concept Development Plan. All of these uses are permitted in the MUC-1 zone.

17.29.030 Conditional Uses--MUC-1 and MUC-2 Zones.

The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:

A. Ancillary drive-in or drive-through facilities …

L. Passenger terminals (water, auto, bus, train)

Response: At this time, the applicants do not propose any conditional uses in the MUC-1 zone.

17.29.040 Prohibited Uses in the MUC-1 and MUC-2 Zones.

The following uses are prohibited in the MUC District:

A. Distributing, wholesaling and warehousing; …

H. Self-service storage facilities

Response: At this time, the applicants do not propose any uses that are prohibited in the MUC-1 zone.

17.29.050 Dimensional Standards--MUC-1.

A. Minimum lot areas: none.

B. Maximum building height: forty feet or three stories, whichever is less.

Response: Buildings in the MUC-1 zone proposed in the Concept Development Plan would be no more than two stories high. Final building designs will be proposed at the Detailed Development Plan stage.

C. Minimum required setbacks if not abutting a residential zone: none.

D. Minimum required interior and rear yard setbacks if abutting a residential zone: twenty feet, plus one-foot additional yard setback for every one-foot of building height over thirty-five feet.

Response: Buildings in the MUC-1 zone proposed in the Concept Development Plan are set back approximately 10 feet from the residential zone boundary. The applicants request an adjustment to the minimum interior and rear yard setbacks from a residential zone, so that the setback is 10 feet, as described in Section 1.6 and under OCMC 17.65.070. Final building locations will be proposed at the Detailed Development Plan stage.

E. Maximum Allowed Setbacks.

1. Front yard: five feet (may be extended with Site Plan and Design Review Section 17.62.055).
2. Interior side yard: none.
3. Corner side setback abutting street: thirty feet provided the Site Plan and Design Review requirements of Section 17.62.055 are met.
4. Rear yard: none.

Response: Buildings in the MUC-1 zone proposed in the Concept Development Plan have maximum setbacks that comply with the OCMC standards. Final building locations will be proposed at the Detailed Development Plan stage.

F. Maximum lot coverage of the building and parking lot: eighty percent.

Response: The Concept Development Plan shows an approximate lot coverage of the buildings and parking lots of 50 percent. The proposed street in the MUC-1 district is included in this calculation. Final building and parking lot designs will be proposed at the Detailed Development Plan stage.

G. Minimum required landscaping (including landscaping within a parking lot): twenty percent.

Response: The Concept Development Plan shows approximately 50 percent of the site in the MUC-1 zone will be landscaped. The proposed street in the MUC-1 district is included in this calculation. Final landscaping will be proposed at the Detailed Development Plan stage.

17.29.060 Dimensional Standards--MUC-2.

Response: No part of the project site is designated MUC-2. This standard is not applicable.

17.29.070 Floor Area Ratio (FAR).

Floor area ratios are a tool for regulating the intensity of development. Minimum FARs help to achieve more intensive forms of building development in areas appropriate for larger-scale buildings and higher residential densities.

A. Standards

a. The minimum floor area ratios contained in 17.29.050 and 17.29.060 apply to all non-residential and mixed-use building development, except stand-alone commercial buildings less than 10,000 square feet in floor area.

b. Required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs.

c. An individual phase of a project shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, that the required density for the

project will be achieved at project build out.

Response: The OCMC does not include standards for minimum FARs in the MUC-1 zone. This standard is not applicable.

2.5 OCMC 17.41 – Tree Protection Standards

17.41.010 Protection of Trees- Intent.

The intent of this chapter is to ensure that new development is designed in a manner that preserves trees to the maximum extent practicable. As a requirement of any Type II land use application, the siting of structures, roadways and utility easements, shall provide for the protection of tree resources to the maximum extent practicable. This applies to all subdivision, partition and site plan and design review applications.

Applicants for development shall ensure that all trees shall, whenever practicable, be preserved outside the construction area.

Response: Prior to preparing the Concept Development Plan, the applicants had a tree survey conducted on the project site. Trees 6 inches or greater dbh (diameter at breast height) were mapped, the species identified, and their general health assessed. Surveyed trees are shown on the Existing Conditions site plans (Sheets C4.1 through C4.4). As shown on the proposed development plan (Sheet A1.01), nearly all of the surveyed trees that were in good health at the time of the survey would be retained in the Concept Development Plan.

17.41.020 Tree Protection – Applicability.

Applications for development subject to Chapter 16.08 or 16.12 (Subdivision or Minor Partition) or Chapter 17.62 (Site Plan and Design Review) shall demonstrate compliance with these standards as part of the review proceedings for those developments. For public capital improvement projects, the City Engineer shall demonstrate compliance with these standards pursuant to a Type II process. Additionally, tree removal on slopes greater than 25% where canopy area removal exceeds 25% of the lot, unless exempted under section 17.41.030, shall be subject to these standards. A heritage tree or grove which has been designated pursuant to the procedures of Chapter 12.08.050 shall be subject to the standards of this section.

Response: The application is subject to Site Plan and Design Review and is subject to the Tree Protection standards. The project site does not include any slopes greater than 25 percent, nor any designated heritage tree or grove. Compliance with the standards is demonstrated below.

17.41.050 Tree Protection – Compliance Options.

Applicants for review shall comply with these requirements through one of the following procedures:

Option 1 - Mitigation. Retention and removal of trees, with subsequent mitigation by replanting pursuant to section 17.41.060 or 17.41.070; or

Option 2 – Dedicated Tract. Protection of trees or groves by placement in a tract within a new subdivision or partition plat pursuant to section 17.41.080, or

Option 3 – Restrictive Covenant. Protection of trees or groves by recordation of a permanent restrictive covenant pursuant to section 17.41.090.

A regulated tree that has been designated for protection pursuant to this section must be retained or permanently protected unless it has been determined by a certified arborist to be diseased, dying or hazardous, pursuant to the following applicable provisions.

Response: The applicants propose to comply with Option 1. As shown on the site plans, the applicants propose to retain most of the existing trees that are 6 inches dbh or greater. The tree survey showed a total of 154 trees (6-inch dbh or more) on the project site. As proposed at this time, 114 of those trees would remain, and 40 would be removed. The applicants propose to plant approximately 200 new trees as part of site redevelopment, as shown on Sheet A1.02. However, final tree removal and mitigation with specific numbers and locations will be completed with the Detailed Development Plan. The applicants will comply with mitigation standards.

In addition, some of the existing trees will be retained in parks and open spaces in the Concept Development Plan, which will protect the trees.

2.6 OCMC 17.49 – Natural Resource Overlay District

The applicant is applying for an exemption to the Natural Resource Overlay District (NROD) standards.

As shown on the official Oregon City zoning map, the NROD boundary extends onto two small portions of the subject site, which are shown on Sheet A0.02 of the site plans: an area in the northwest corner of the site, adjacent to Apperson Street, and an area along the southern border of the site, on the Morrow Property, adjacent to Holcomb Street. In both cases, the NROD is intended to protect a stream: Trout (Tour) Creek to the south and an unnamed stream to the northwest. Both streams are at the base of relatively high, steep, vegetated embankments. Also in both cases, the proposed development site is separated from the Goal 5 resource by a paved, public street with curbs and gutters: Holcomb Boulevard to the south and Apperson Street to the west. The streets offer no habitat value and disconnect any potential habitat or natural resource value of the project site from the habitat/other values that may be present within the Goal 5 resource.

The purpose of the NROD, as stated in the OCMC, is:

> *"This overlay zone designation provides a framework for protection of Metro Titles 3 and 13 lands, and Statewide Planning Goal 5 resources within Oregon City. The Natural Resource Overlay District (NROD) implements the Oregon City Comprehensive Plan Natural Resource Goals and Policies, as well as Federal Clean Water Act requirements for shading of streams and reduction of water temperatures, and the recommendations of the Metro ESEE Analysis. It is intended to resolve conflicts between development and conservation of habitat, stream corridors, wetlands, and floodplains identified in the city's maps. The NROD contributes to the following functional values:*
>
> *A. Protect and restore streams and riparian areas for their ecologic functions and as an open space amenity for the community.*
>
> *B. Protect floodplains and wetlands, and restore them for improved hydrology, flood protection, aquifer recharge, and habitat functions.*
>
> *C. Protect upland habitats, and enhance connections between upland and riparian habitat.*

D. Maintain and enhance water quality and control erosion and sedimentation through the revegetation of disturbed sites and by placing limits on construction, impervious surfaces, and pollutant discharges.

E. Conserve scenic, recreational, and educational values of significant natural resources.

The NROD ecological functions listed above are planned for integration with existing neighborhoods and new residential and commercial developments. The long-term goal of the NROD is to restore and enhance stream corridors, wetlands, and forests to more natural vegetated conditions, recognizing that existing homes and other existing uses will continue in the district."

The existing conditions described above render it infeasible for the portions of the site within the NROD to contribute to the ecological functions stated in the purpose of the NROD. The NROD portions of the site are small and separated from the designated natural resources by existing public streets. However, the proposed site redevelopment is consistent with the purpose of the NROD district in that:

A. No development would occur within streams or riparian areas, and all stormwater runoff from the site would be treated on-site.

B. No development is proposed within a floodplain or wetland area.

C. Little upland habitat exists on the site, other than trees and lawns with some landscaping and a community garden. The Concept Development Plan would maintain the majority of existing trees and would mitigate on-site for trees that would be removed. A portion of the site, along the proposed Harvey Street alignment, would be set aside as a natural habitat area. The community vegetable garden would be relocated to the northwest portion of the site, within the NROD boundary, providing a connection for natural pollinators (insects, birds) between the site and the nearby natural area.

D. Water quality would be enhanced by improving on-site stormwater collection and treatment and by using low-impact development techniques as much as feasible. The applicants plan to use permeable pavement for alleys and off-street parking areas as much as is feasible. During construction, erosion, sediment, and pollution control plans would be in place to prevent impacts. All disturbed areas would be revegetated after construction.

E. The proposed development would not affect the scenic, recreational, or educational value of nearby significant natural resources.

2.7 OCMC 17.52 – Off-Street Parking and Loading

17.52.010 Number of Spaces Required.

The construction of a new structure or at the time of enlargement or change in use of an existing structure within any district in the city, off-street parking spaces shall be provided in accordance with this section. In the event several uses occupy a single structure or parcel of land, the total requirements for off-street parking shall be the sum of the requirements of the several uses computed separately.

Response: OCMC 17.52.010 defines minimum and maximum parking requirements. Table 12 displays the City's minimum parking requirements used to determine the required amount of parking for each land use type proposed for the Clackamas Heights site as well as the maximum allowed. The calculations were based on a maximum development intensity of 283 units; actual development may range from 250 to 283 units. When a proposed land use is not included in the city's code, the parking requirement rate for most similar land use type is substituted chosen. The parking rate for "office" was used for the proposed community center, since the OCMC does not provide a specific community center category.

Table 12. Oregon City Minimum Parking Requirements by Land Use Type

Land Use Category	Minimum Parking Requirement	Maximum Parking Requirement	Applicable land use in Concept Development Plan
Single-family dwelling	1.00 per unit	1.5 per unit	Single-family detached, Rowhouse
Multi-family: 1 bedroom	1.25 per unit	2.00 per unit	Carriage unit, stacked flat, apartment
Multi-family: 2 bedroom	1.50 per unit	2.00 per unit	
Multi-family: 3 bedroom	1.75 per unit	2.50 per unit	
Preschool Nursery/Kindergarten	2 spaces per 1,000 sf of GLA	3 spaces per 1,000 sf of GLA	ECEFWC
Office	2.70 per 1,000 sf of GLA (1)	3.33 per 1,000 sf of GLA (1)	Community Center (includes Clackamas Heights property management), Community Policing Office
Retail Store / Shopping Center/ Restaurant	4.10 per 1,000 sf of GLA (1)	5 per 1,000 sf of GLA (1)	Retail

Source: Oregon City Municipal Code 17.52.010
GLA = Gross Leasable Area

Proposed Adjustments to Minimum Parking Requirements

Parking demand adjustments are proposed to reflect the characteristics of the project site. Oregon City allows a reduction in the number of off-street parking spaces required for certain types of development. The following five adjustment factors were considered/used in this analysis. Blocks are shown in the block diagram on Sheet A1.01.

- Captive market effect: a 10% reduction was applied to retail and office uses. The 10% reduction is based on the Oregon City code, which allows up to 10% reduction for commercial development in proximity to a multifamily housing development of 80 units or more.[4] However, for local-serving uses (in particular the Community Center but also the ECEWC and Retail), a larger effect is likely given that these uses will be well-integrated into the development and many residents are likely to access them on foot.
- Non-vehicle trips: This reduction was not used, but would apply to non-residential office uses. The Oregon City code allows an up to 10% reduction in parking requirements if TDM strategies are employed.[5]

[4] Oregon City Municipal Code 17.52.010 (A)
[5] Oregon City Municipal Code 17.52.010 (B)

- Senior/disabled Housing: No reduction factor is proposed, however the two multi-family housing developments in Block 7 will likely require less parking due to their expected high share of senior and disabled tenants.
- On-street parking: Overall, 15% of the on-street parking spaces were utilized to meet minimum parking requirements. On a block basis, between 0% and 20% of on-street parking was counted towards meeting the minimum requirements, with the exception of Block 7, where 75% of on-street parking was counted towards the requirement. Oregon City Code allows parking to be counted toward the minimum standards when it is on the block face abutting the land use.[6]
- Shared parking: an 8% reduction was applied to Blocks 4 and 7 to reflect time-of-day variations in parking demand in the mixed-used developments in this area of the site, based on a shared parking analysis. Oregon City allows up to 50% reduction for mixed use developments.[7]

Number of Spaces Required

Table 6, Summary of Parking: Estimated Parking Required vs. Proposed, included above in a discussion of peak parking demand (per 17.65.050.B.1.g), shows the estimated number of parking required compared to the number of spaces proposed.

17.52.020 Administrative provisions.

A. The provision and maintenance of off-street parking and loading spaces are continuing obligations of the property owner.

B. Off-street parking for dwellings shall be located on the same lot with the dwelling.

C. Required parking spaces shall be available for the parking of operable passenger automobiles of residents, customers, patrons and employees only, and shall not be used for storage of vehicles or materials or for the parking of trucks used in conducting the business or use.

Response: For the homeownership units, which will be on separate lots, the off-street parking is provided on the same lot as the dwelling unit. Off-street parking is located behind the units with access via alleys.

17.52.030 Design review.

A. Development of or alterations to existing parking lots shall require site plan review.

Response: The City is conducting a site plan review for the Concept Development Plan; additional site plan review will be done for the Detailed Development Plan.

B. Access. Ingress and egress locations on public thoroughfares shall be located in the interests of public traffic safety. Groups of more than four parking spaces shall be so located and served by driveways so that their use will require no backing movements or other maneuvering within a street right-of-way other than an alley. No driveway with a slope of greater than fifteen percent shall be permitted without approval of the city engineer.

[6] Oregon City Municipal Code 17.52.010 (D)
[7] Oregon City Municipal Code 17.52.010 (C 1, 2)

Response: Adequate space will be provided in the parking lot serving the neighborhood retail use in the far southwest corner of the site to allow motorists to make a 3-point turn to exit the lot in the event that the spaces are full.

C. Surfacing. Required off-street parking spaces and access aisles shall have paved surfaces adequately maintained. The use of pervious asphalt/concrete and alternative designs that reduce stormwater runoff and improve water quality pursuant to the city's stormwater and low impact development design standards are encouraged.

Response: Alleys and private parking surfaces would have a permeable pavement, such as pervious concrete, that allows stormwater to drain into a sub-grade rock drainage layer. The stormwater designs incorporate low impact development design standards to the extent feasible.

D. Drainage. Drainage shall be designed in accordance with the requirements of Chapter 13.12 and the city public works stormwater and grading design standards.

Response: Drainage has been designed in accordance with City standards.

E. Dimensional Requirements.

Response: Parking spaces were designed in accordance with the dimensional requirements. Final parking lot design will be submitted at the Detailed Development Plan stage.

17.52.040 - Carpool and vanpool parking.

A. New, office 1 and industrial developments with seventy-five or more parking spaces, and new hospitals, government offices, nursing and retirement homes, schools and transit park-and-ride facilities with fifty or more parking spaces,…

Response: No such development is proposed. This standard does not apply.

17.52.050 Bicycle Parking-Purpose-Applicability.

To encourage bicycle transportation to help reduce principal reliance on the automobile, and to ensure bicycle safety and security, bicycle parking shall be provided in conjunction with all of the following uses:

A. Multifamily housing of four or more units;

B. Retail and office development;

C. Industrial development;

D. Institutional development; …

Response: As described below, bicycle parking would be provided as required.

17.52.060 Bicycle Parking Standards.

A. Bicycle parking spaces shall be provided for the uses described in Section 17.52.050, in the amounts *specified in Table A.*

TABLE A Required Bicycle Parking Spaces*	
USE	**BICYCLE PARKING**
Residential	
Multiple family (three or more units)	1 per unit
Commercial Residential	
Hotel and Motel	1 per 10 guest rooms
Rooming or boarding houses	1 per 10 guest rooms
Bed and breakfast inns	1 per 10 guest rooms
Club/lodge	1 per 20 auto spaces
Institutional	
Welfare institution	not applicable
Correctional institution	1 per 30 auto spaces
Nursing home, care facility, sanitarium	1 per 30 auto spaces
Hospital	1 per 20 auto spaces
Park-and-ride lot	5 per acre, at least one of which is a locker
Transit center	5 per center, at least one of which is a locker
Parks and open space	1 per 10 auto spaces
Public parking lots	1 per 20 auto spaces
Automobile parking structures	1 per 20 auto spaces
Places of Public Assembly	
Religious institutions	1 per 20 auto spaces
Libraries, museums	1 per 10 auto spaces
Preschool, nursery, kindergarten	2 spaces
Elementary, junior high	4 per classroom
High school	2 per classroom
College, business/commercial schools	2 per classroom
Other auditorium/meeting room	1 per 20 auto spaces
Commercial Amusement	
Stadium, arena, theater	1 per 20 auto spaces
Bowling alley, skating rink, dance hall	1 per 15 auto spaces
Commercial	
Retail stores and shopping centers	1 per 20 auto spaces
Retail stores handling exclusively bulky merchandise such as automobile, boat or trailer sales or rental	1 per 40 auto spaces
Bank, office	1 per 20 auto spaces
Medical and dental clinic	1 per 20 auto spaces

Convenience food store	1 per 10 auto spaces
Furniture and appliance stores	1 per 40 auto spaces
Eating and drinking establishment	1 per 20 auto spaces
Auto repair garage and gasoline service station	2 spaces
Mortuaries	not applicable
Swimming pools, gymnasiums, ball courts	1 per 10 auto spaces
Industrial	
Storage warehouse	1 per 50 auto spaces
Manufacturing	1 per 40 auto spaces

1. Bicycle parking shall be located on-site, in one or more convenient, secure and accessible outdoor and indoor locations close to a main building entrance. The City Engineer and the Community Development Director may permit the bicycle parking to be provided within the public right-of-way. If sites have more than one building, bicycle parking shall be distributed as appropriate to serve all buildings. If a building has two or more main building entrances, the review authority may require bicycle parking to be distributed to serve all main building entrances, as it deems appropriate.

Response: Sheet T1.4 shows the proposed locations for bicycle parking within the site. There will be individual outdoor storage units to provide long-term bike storage for each residential unit. The apartments in Block 7 will have access to indoor bicycle storage facilities as shown. Other bicycle parking is categorized as either short-term or covered. The amount of bicycle parking required is discussed below and summarized in Table 13, which is also shown on Sheet T1.4.

The Clackamas Heights Concept Development Plan provides bicycle parking that serves both long- and short-term functions.

- Long-term parking provides residents with a secure, ideally enclosed and covered storage location; with the exception of the apartments located in Block 7, each unit will have a secure storage shed that can be used for bike storage. The apartments in Block 7 will have access to indoor bike parking areas.
- Short-term parking serves visitors in the mixed use and residential blocks. Non-residential uses require short-term parking to serve customers and employees; covered parking is provided particularly for employees who would be parking a bicycle for long periods over a day. There may be an opportunity for shared parking in the mixed-used parts of the site, especially given the significant number of handicapped-accessible units in Block 7 that would be expected to have a lower demand for bicycle parking. Sheet T1.4 shows planned locations for both short- and long-term bicycle parking.

Number of Bicycle Parking Spaces Required. For multi-family residential units, one space is required per unit in buildings of 3 more units, as shown in Table 13. However, each unit will have either a storage shed or access to an indoor bike parking area.

Table 13. Residential Program Bicycle Parking Requirements

Block	# Multi-family Units[1]	Minimum Bicycle Parking Required	Bicycle Parking Requirement
1	27	1 space per unit	27
2	21		21
3	14		14
4A	4		4
4B	0		0
5	32		32
6	26		26
7	43		43
Residential Total	**167**		**167**

[1] Includes only multi-family units in buildings of three or more units per OCMC 17.52.060; carriage units are therefore not included in the calculation of bicycle parking requirements, although they are provided with a storage shed

For non-residential uses, the minimum number of bicycle parking spaces is based on the amount of auto parking spaces required, as shown in Table 14. In several cases, the minimum number appears to be too low and additional spaces are recommended, in particular for the retail uses and community center. For one land use with no directly applicable land use type in the Oregon City Code, the "Library/Museums" minimum was applied to the Community Center

Table 14. Non-Residential Program Bicycle Parking Requirements

Block	Project Land Use	Total Area (sf)	Oregon City Land Use Type Applied	Minimum Requirement for Use Type	Auto Spaces Req'd	Bike Parking Req'd	Add'l Bike Parking Recommended	Recommended Minimum Bike Parking
4A	Community Center	4,000	Libraries, museums	1 per 10 auto spaces	15	2	6	8
4A	Clackamas Heights Property Management	2,000	Bank, Office	1 per 20 auto spaces	5	1	1	2
4B	ECEFWC	14,000	Preschool, nursery, kindergarten	2 spaces	25	2	2	4
4B	Retail	2,000	Retail stores	1 per 20 auto spaces	7	1	5	6
7	Community Policing Office	200	Bank, Office	1 per 20 auto spaces	1	1	1	2
Non-residential Total					**53**	**7**	**15**	**22**

Source: OCMC 17.52.060 (Table A), Required Bicycle Parking Spaces

Bicycle parking requirements for parks and open space are based on the number of automobile spaces provided. Automobile parking spaces are not required by Oregon City Code and not specified due to the primarily local-serving nature of these uses. However, bicycle parking is recommended for the Community Garden and Community Park, as listed in Table 15.

Table 15. Parks and Open Space Bicycle Parking Requirements

Project Land Use	Oregon City Land Use Type Applied	Minimum Parking Requirement	Auto Spaces Required	Bicycle Parking Required	Recommended Bicycle Parking
Community Garden	Parks and Open Space	1 per 10 auto spaces	None	None	2
Community Park					8
Parks & Open Space Total					**10**

Table 16 summarizes the total number of required bicycle parking spaces by block number. The Oregon City Municipal Code requires 174 parking spaces, and an additional 25 spaces are recommended.

Table 16. Summary of Residential and Non-Residential Bicycle Parking Requirements

Block/Use	No. of Residential Spaces Req'd	No. of Non-Residential Spaces Req'd	Total Bike Parking Spaces Req'd	Additional Bike Parking Recommended	Total with Recommended Spaces
1	27	-	27		27
2	21	-	21		21
3	14	-	14		14
4A	4	3	7	7	14
4B	0	3	3	7	10
5	32	-	32		32
6	26	-	26		26
7	43	1	44	1	45
Community Garden	-	0	0	2	2
Community Park	-	0	0	8	8
Total	**167**	**7**	**174**	**25**	**199**

2. Bicycle parking areas shall be clearly marked. Outdoor bicycle parking areas shall be visible from on-site buildings or the street. Indoor bicycle parking areas shall not require stairs to access the space, except that bicycle parking may be allowed on upper stories within multi-story residential structures.

Response: The Concept Development Plan (Sheet T1.4) indicates bicycle parking locations that comply with this standard. Appropriate signage will be provided when the site is developed.

B. All bicycle parking areas shall be located to avoid conflicts with pedestrian and motor vehicle movement.

1. Bicycle parking areas shall be separated from motor vehicle parking and maneuvering areas and from arterial streets by a barrier or a minimum of five feet. Areas set aside for required bicycle parking shall be clearly marked and reserved for bicycle parking only. If a bicycle parking area

is not plainly visible from the street or main building entrance, then a sign must be posted indicating the location of the bicycle parking area.

Response: The Concept Development Plan (Sheet T1.4) indicates bicycle parking locations that comply with this standard. Appropriate signage will be provided when the site is developed.

2. Bicycle parking areas shall not obstruct pedestrian walkways; provided, however, that the review authority may allow bicycle parking in the public sidewalk where this does not conflict with pedestrian accessibility.

Response: The Concept Development Plan (Sheet T1.4) indicates bicycle parking locations that comply with this standard. Final bicycle parking plans will be provided at the Detailed Development Plan stage.

C. Outdoor bicycle areas shall be connected to main building entrances by pedestrian accessible walks. Outdoor bicycle parking areas also shall have direct access to public right-of-way and to existing and proposed pedestrian/bicycle accessways and pedestrian walkways.

Response: The Concept Development Plan (Sheet T1.4) indicates bicycle parking locations that comply with this standard. Final bicycle parking plans will be provided at the Detailed Development Plan stage.

D. Bicycle parking facilities shall offer security in the form of either a lockable enclosure in which the bicycle can be stored or a stationary rack to which the bicycle can be locked. All bicycle racks and lockers shall be securely anchored to the ground or to a structure. Bicycle racks shall be designed so that bicycles may be securely locked to them without undue convenience.

Response: Some of the proposed bicycle parking will be in covered areas, and bicycle parking will comply with this standard. Final plans will be provided at the Detailed Development Plan stage.

17.52.070 Pedestrian Access in Off-Street Automobile Parking Areas.

Sidewalks and curbs shall be provided in accordance with the city's transportation master plan and development standards within Chapter 17.62.050.A.7 of the Oregon City Municipal Code.

Response: As shown on the proposed development plans, sidewalks and curbs will be provided in accordance with City standards. Final plans will be provided with the Detailed Development Plan.

17.52.090 Parking Lot Landscaping.

B. Development Standards. Parking lot landscaping is required for all uses, except for single- and two-family residential dwellings.

Response: Parking lot landscaping areas are shown on Sheet A1.01. Detailed plans and landscaping plans will be provided with the Detailed Development Plan.

2.8 OCMC 17.20 - Residential Design Standards

17.20.010 Purpose.

The Residential Design Standards are intended to:

A. Enhance Oregon City through the creation of attractively designed housing and streetscapes.

B. Ensure that there is a physical and visual connection between the living area of the residence and the street.

C. Improve public safety by providing "eyes on the street".

D. Promote community interaction by designing the public way, front yards and open spaces so that they are attractive and inviting for neighbors to interact.

E. Prevent garages from obscuring or dominating the primary facade of the house.

F. Provide guidelines for good design at reasonable costs and with multiple options to achieve the purposes of this chapter.

The Community Development Director may approve an alternative design that achieves the intent of this chapter.

Response: The Conceptual Development Plan supports the purpose of Chapter 17.20 by:

A. Replacing out-of-date (c. 1940) structures and streets with attractive new residences and connecting streets that will comply with the standards of the Chapter.

B. Placing new residences and other buildings close the street frontages and along parks, with windows facing on the streets (public and private) and/or parks and alleys. Pedestrian paths will connect residences and the streets. A connected street grid will also enhance visibility onto the streets and along the blocks.

C. Facing windows and doorways toward the street and providing street trees and sidewalks along streets, as well as paths and trees in parks, to encourage an attractive, safe environment for pedestrians and others.

D. At this stage of development planning, the concept plan does not include garages/covered parking for all units. Where garages are planned, they would be located behind dwellings, accessed via alleys. The Concept Development Plan proposes carriage units above garages to help screen parking areas and to provide eyes on the streets and alleys. Parking would be provided in off-street parking areas and on the street. Most of the off-street parking would be located behind structures and served by alleys.

E. Conceptual development design guidelines are shown on Sheet C2.1 (street cross-sections and plan, and locations for buildings, parks, etc.).

17.20.015 Street Trees.

All new single or two-family dwellings or additions of 25 percent or more of the existing square footage of the home (including the living space and garage(s)) shall install a street tree along the frontage of the site, within the abutting developed right-of-way. Existing trees may be used to meet this requirement. A picture of the planted tree shall be submitted to the Planning Division prior to issuance of an occupancy. Upon approval by the Community Development Director, when a planter strip is not present, a tree may be placed within an easement on the abutting private property within 10 feet of the public right-of-way if a covenant is recorded for the property with the Clackamas County Recorder's Office identifying the tree as a city street tree, subject to the standards in Chapter 12.08 of the Oregon City Municipal Code. The street tree shall be a minimum of 2-inchs in caliper and either selected from the Oregon City Street Tree List or approved by a certified arborist for the planting location.

Response: Street trees will be planted in accordance with this standard. Specifics will be proposed with the Detailed Development Plan.

17.20.020 Applicability.

The standards in section 17.20.030 through 17.20.050 apply to the street-facing facades of all single and two-family dwellings. Each new dwelling or addition shall comply with one of the residential design options in chapter 17.20.030 for the front façade of the home. Additions to homes existing prior to the adoption of this chapter in the concept plan area or new single-family homes outside of the Concept Plan areas may choose review under this section or OCMC 17.21- Single Family Residential Standards -Park Place Concept Plan Area.

Garages are defined as structures, or portions thereof used or designed to be used for the parking of vehicles, including carports. The garage width shall be measured based on the foremost interior garage walls. The Community Development Director may approve an alternative measurement location if the exterior façade screens a section of the garage or better accomplishes the goals of this Chapter.

Response: At this stage of development planning, no specific designs for the building facades are proposed. Specific designs will be proposed at the Detailed Development Plan stage and/or when each phase of development is proposed and submitted to Oregon City for review.

17.20.030 Residential Design Options.

A. A dwelling with no garage or a detached garage may be permitted if 5 of the residential design elements in 17.20.040.A are included on the front façade of the structure.

B. A dwelling without a garage on the primary street-facing façade may be permitted if 5 of the residential design elements in 17.20.040.A are included on the front façade of the structure.

C. A dwelling with a front garage where the building is less than 24 feet wide may be permitted if:

1. The garage is no more than 12 feet wide and;

Response: At this time, dwellings are proposed that have detached garages or no garages. Also, carriage units with garages/covered parking on the main floor are proposed, but the garages would not face the primary street-facing façade. The applicants intend to include at least five of the residential design elements on the front building facades; such information will be provided at the Detailed Development Plan stage and/or when each phase of development is proposed and submitted to the City for review.

17.20.035 Corner Lots.

Homes on corner lots and through lots shall comply with one of the six options in 17.20.030 for the front of the lot. The other street-facing side of the home shall include windows and doors for a minimum of 15% of the lineal length of the ground floor façade and comply with 5 additional residential design elements in 17.20.040.A.

Response: Specific designs will be proposed at the Detailed Development Plan stage and/or when each phase of development is proposed and submitted to Oregon City for review.

17.20.040 Residential Design Elements.

A. The residential design elements below shall be provided as required in section 17.20.030 above.

Exemptions to the standards in Chapter 17.20.040 may be approved through a Type II Land Use decision that are in compliance with the purpose of this Chapter listed in 17.20.010.

Response: At this time, the applicants do not anticipate requesting exemptions to the standards of Chapter 17.20.040. Specific designs to address the standards of the Chapter will be provided at the Detailed Development Plan stage and/or when each phase of development is proposed and will be submitted to Oregon City for review.

17.20.050 Main Entrances.

The main entrance for each structure shall:

A. Face the street; or

B. Be at an angle up to 45 degrees from the street;

C. Open onto a covered porch that is at least 60 square feet with a minimum depth of 5 feet on the front or, in the case of a corner lot, the side of the residence;

Response: As stated previously in this narrative, the applicants request an adjustment to this standard to allow structures to face private streets or open spaces with public access easements instead of public streets. As shown on Figure 1 and Sheet A1.01, all proposed structures would face a public access easement or, for structures fronting public streets (at the perimeter of the project site), the main entrances would face the street.

2.9 OCMC 17.54 – Supplemental Zoning Regulations and Exceptions

17.54.010 Accessory buildings and uses.

Accessory buildings and uses shall comply with all requirements for the principal use except where specifically modified by this title and shall comply with the following limitations:

A. Signs. Signs shall be permitted as provided in chapter 15.28.

Response: No signs are proposed at this time. This standard is not applicable.

B. Accessory Buildings Dimensional Requirements. The following setbacks and other dimensional requirements shall apply to all accessory buildings and uses:

1. Building footprint less than two hundred square feet. An interior side or rear yard setback behind the front building line may be reduced to three feet for any detached accessory structure with a building footprint which is less than two hundred square feet in area and does not exceed a height of fourteen feet (measured from the average grade on the front of the structure to the midpoint of the roof). No portion of any such structure shall project across a lot line and the accessory structure shall be located behind the front building line of the primary structure. A building permit is required for accessory buildings over ten feet in height (measured from the interior floor to the midpoint of the roof) or over two hundred square feet in size.

Response: No accessory buildings under 200 square feet are shown on the proposed site plans; however accessory structures (e.g., storage sheds) of approximately 30 to 60 square feet may be proposed at a later date. If necessary, small accessory structures will be addressed with the Detailed Development Plan.

2. Building footprint from two hundred to six hundred square feet. The accessory building must be constructed with the same exterior building materials as that of the primary structure, or an acceptable substitute to be approved by the planning division. The accessory structure shall be located behind the front building line of the primary structure. The interior side and rear yard setbacks may be reduced to three feet for one accessory structure, and its projections, within this category provided the structure and its projections:

a. Are detached and separated from other structures by at least three feet;

b. Do not exceed a height of fourteen feet;

Response: At this time, no accessory buildings with footprints of between 200 and 600 square feet. However, if such structures are proposed in the Detailed Development Plan, this standard will be addressed.

3. Building footprint over six hundred square feet. One accessory structure with a building footprint in excess of six hundred square feet may be approved by the planning division. An accessory structure footprint in excess of six hundred square feet must meet the setback requirements of the district in which it is located, and must also meet the following provisions:

   a. The accessory building must be compatible with the primary structure and constructed with the same exterior building materials as that of the primary structure, or an acceptable substitute to be approved by the planning division.

   b. The lot must be in excess of twenty thousand square feet.

   c. The building footprint of the accessory structure shall not exceed the building footprint of the primary structure. In no case may the accessory building footprint exceed eight hundred square feet.

   d. The accessory structure shall not exceed the height of the primary structure and shall be located behind the front building line of the primary structure.

Response: “Accessory building" means a detached structure subordinate in size and use, but located on the same lot as, a principal building. The Conceptual Development includes covered parking areas/garages; each incorporates four parking spaces and one carriage unit above. The Detailed Development may include a different configuration for covered parking and carriage units, but it will likely include something similar that will meet the definition of “accessory building.”

Accessory buildings will be compatible in design and material with the primary structures. No accessory buildings over 600 square feet are proposed for the homeownership units, which would be on lots of less than 20,000 square feet. The accessory buildings would be on the main portion of TL 700, which will comprise roughly 18 acres (assuming the for-sale units are developed as shown on the Concept Development Plan). Tax Lot 700 will be owned and maintained under single ownership (HACC). Each accessory building is intended to provide covered parking for multiple units. Because several accessory buildings are proposed, the applicants request an adjustment to standard 3., which allows one accessory structure per lot. The proposed accessory buildings will meet the setback standards, except where adjustments to the standards may apply.

The Conceptual Development Plan includes covered parking areas/garages; each incorporates four parking spaces and one carriage unit above, and is approximately 46 feet by 20 feet (920 square feet). The applicants request an adjustment to standard 3.c. for the larger footprint. No accessory structures are proposed that would exceed the building footprint or height of the primary structures. Sheet A1.01 shows that most of the accessory structures will be located behind the front building line of the primary structures. However, the applicants may propose accessory structures that are even with the front line of the primary structures to provide the carriage units on the second story of the accessory structure with a better connection to the street. An adjustment to standard 3.d. is requested, as explained elsewhere in this narrative.

2.10 OCMC 17.62 – Site Plan and Design Review

17.62.010 Purpose.

The purposes of site plan and design review are to: encourage site planning in advance of construction; protect lives and property from potential adverse impacts of development; consider natural or man-made hazards which may impose limitations on development; conserve the City's natural beauty and visual character and minimize adverse impacts of development on the natural environment as much as is reasonably practicable; assure that development is supported with necessary public facilities and services; ensure that structures and other improvements are properly related to their sites and to surrounding sites and structure; and implement the city's comprehensive plan and land use regulations with respect to development standards and policies.

Response: The proposed Concept Development Plan has been prepared in accordance with the standards of OCMC 17.62, and compliance with the standards is demonstrated on the site plans. The Concept Development Plan is the first step of the City's Master Plan process. Additional Site Plan and Design Review will be required when the Detailed Development Plan for the site is submitted to Oregon City for review and approval.

2.11 OCMC 12.04 – Streets, Sidewalks, and Public Places

12.04.010 - Jurisdiction and management of the public rights-of-way.

A. The city has jurisdiction and exercises regulatory management over all public rights-of-way within the city under authority of the City Charter and state law….

Response: Because the on-site streets will be private, with public access and utility easements, the applicants will have maintenance responsibility for the streets.

12.04.015 - Street design—Purpose and general provisions.

All development shall be in conformance with the policies and design standards established by this chapter and with applicable standards in the city's public facility master plan and city design standards and specifications. In reviewing applications for development, the city engineer shall take into consideration any approved development and the remaining development potential of adjacent properties. All street, water, sanitary sewer, storm drainage and utility plans associated with any development must be reviewed and approved by the city engineer prior to construction. All streets, driveways or storm drainage connections to another jurisdiction's facility or right-of-way must be reviewed by the appropriate jurisdiction as a condition of the preliminary plat and when required by law or intergovernmental agreement shall be approved by the appropriate jurisdiction.

Response: The proposed streets comply with the City's policy and design standards, except where adjustments are requested by this application.

12.04.020 - Street design—Generally.

The location, width and grade of street shall be considered in relation to: existing and planned streets, topographical conditions, public convenience and safety for all modes of travel, existing and identified future transit routes and pedestrian/bicycle accessways, and the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents and curves appropriate for the traffic to be carried considering the terrain. To the extent possible, proposed streets shall connect to all existing or approved stub streets that abut the development site. Where location is not shown in the development plan, the arrangement of streets shall either: …

Response: The proposed streets have been designed to comply with this standard, as shown on the site plans. Site redevelopment replaces streets that do not connect through the site with new connections both east-west and north-south through the site.

12.04.025 Street design—Minimum right-of-way.

All development shall provide adequate right-of-way and pavement width. Adequate right-of-way and pavement width shall be provided by:

A. Complying with the street design standards contained in the table provided in Chapter 12.04. The street design standards are based on the classification of streets that occurred in the Oregon City Transportation System Plan (TSP), in particular, the following TSP figures provide the appropriate classification for each street in Oregon City: Figure 5-1: Functional Classification System and New Roadway Connections; Figure 5-3: Pedestrian System Plan; Figure 5.6: Bicycle System Plan; and Figure 5.7: Public Transit System Plan. These TSP figures from the Oregon City Transportation System Plan are incorporated herein by reference in order to determine the classification of particular streets.

Table 12.04.020 STREET DESIGN STANDARDS

Type of Street	**Maximum Right-of-Way Width**	**Pavement Width**
Major arterial	124 feet	98 feet
Minor arterial	114 feet	88 feet
Collector street	86 feet	62 feet
Neighborhood collector street	81 feet	59 feet
Local street	54 feet	32 feet
Alley	20 feet	16 feet

B. The applicant may submit an alternative street design plan that varies from the street design standards identified above. An alternative street design plan may be approved by the city engineer if it is found the alternative allows for adequate and safe traffic, pedestrian and bicycle flows and transportation alternatives and protects and provides adequate multi-modal transportation services for the development as well as the surrounding community.

Response: The applicant is submitting a street design plan (Sheet C2.1) as an alternative to the above street design standards, as permitted by 12.04.025(B). The street designs facilitate safe, multi-modal travel within the site and improve the site's connectivity to the surrounding neighborhoods and transportation facilities.

The proposed street connecting Columbine Street and Holcomb Boulevard, as well as proposed Columbine and propose Harley streets, will have a 32-foot paved width, meeting the standard. However, the proposed public access and utility easements for those streets is 64 feet wide, which exceeds the maximum right-of-way standard shown in Table 12.04.020. The wider easement is proposed to provide sidewalks and generous planting strips/bioswales for stormwater infiltration. Sheet C2.1 shows street cross-sections. The applicants have consulted with Bob Cullison, City engineer, regarding the proposal and request approval of the alternative street design as an adjustment, as explained elsewhere in this narrative.

The proposed Rock and Rose streets do not meet the paved and right-of-way width standards. They are addressed under OCMC 12.04.045, below.

12.03.030 Street design—Access control.

Response: This standard is not applicable. The site is surrounded by developed areas and public streets.

12.04.031 - Liability for sidewalk injuries.

12.04.032 - Required sidewalk repair.

12.04.033 - City may do work.

12.04.034 - Assessment of costs.

Response: The applicants will have responsibility for maintenance and repair of the sidewalks on the interior streets and accept the requirements for sidewalks along public streets adjoining the site.

12.04.035 - Street design—Alignment.

The centerline of streets shall be

A. Aligned with existing streets by continuation of the centerlines; or

B. Offset from the centerline by no more than ten feet, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the offset intersection will not pose a safety hazard.

Response: The private streets have been designed to meet these standards.

12.04.040 - Minimum street intersection spacing standards.

Response: The proposed street designs meet the intersection spacing standard of 150 feet for local streets with the exception of the intersection of proposed Columbine Street and Front Avenue. The applicants request an adjustment to the standard for that intersection, as explained elsewhere in this narrative.

12.04.045 - Street design—Constrained local streets and/or rights-of-way.

Any accessway with a pavement width of less than thirty-two feet shall require the approval of the city engineer, community development director and fire chief and shall meet minimum life safety requirements, which may include fire suppression devices as determined by the fire marshal to assure an adequate level of fire and life safety. The standard width for constrained streets is twenty feet of paving with no on-street parking and twenty-eight feet with on street parking on one side only. Constrained local streets shall maintain a twenty-foot wide unobstructed accessway. Constrained local streets and/or right-of-way shall comply with necessary slope easements, sidewalk easements and altered curve radius, as approved by the city engineer and community development director.

Table 12.04.045

STREET DESIGN STANDARDS FOR LOCAL CONSTRAINED STREETS		
	Minimum	**Required**
Type of Street	**Right-of-Way**	**Pavement Width**
Constrained local street	30 to 40 feet	20 to less than 32 feet

Response: As shown on Sheet C2.1, the proposed constrained streets (Rock and Rose streets) have pavement widths of 26 feet and public access easement widths of 56 feet, which exceeds the standard for constrained streets. The wider easement is proposed to provide sidewalks and generous planting strips/bioswales for stormwater infiltration. Sheet C2.1 shows street cross-

sections. The applicants have consulted with Bob Cullison, City engineer, regarding the proposal and request approval of the alternative street design as an adjustment, as explained elsewhere in this narrative.

12.04.050 - Intersection level of service standards.

When reviewing new developments, the City of Oregon City requires all relevant intersections to be maintained at the minimum acceptable Level of Service (LOS) upon full build-out of the proposed development. The minimum acceptable LOS standards are as follows:

A. For signalized intersection areas of the city that are located outside the Regional Center boundaries a LOS of "D" or better for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of critical movements.

B. For signalized intersections within the regional center boundaries a LOS "D" can be exceeded during the peak hour; however, during the second peak hour, LOS "D" or better will be required as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0.

C. For unsignalized intersection throughout the city a LOS "E" or better for the poorest approach and with no movement serving more than twenty peak hour vehicles operating at worse than LOS "F" will be tolerated for minor movements during a peak hour. (Prior code §9-2-1)

Response: All intersections analyzed in the traffic impact study meet the Oregon City LOS standards. Please refer to the study for the complete analysis.

12.04.055 - Street design—Intersection angles.

Except where topography requires a lesser angle, streets shall be laid out to intersect at angles as near as possible to right angles. In no case shall the acute angles be less than eighty degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least one hundred feet of tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least fifty feet of tangent adjacent to the intersection unless topography requires a lesser distance. All street intersections shall be provided with a minimum curb return radius of twenty-five feet for local streets. Larger radii shall be required for higher street classifications as determined by the city engineer. Additional right-of-way shall be required to accommodate curb returns and sidewalks at intersections. Ordinarily, intersections should not have more than two streets at any one point.

Response: The proposed streets meet this standard, with the exception of the intersections of proposed Rose Street/proposed Harley Street, propose Rose Street/Apperson Boulevard, proposed Rose Street/Front Avenue, proposed Rock Street/ Apperson Boulevard, and proposed Rock Street/proposed Harley Street (see Sheet C2.1). The applicants are seeking an adjustment to the standard for those locations, as explained elsewhere in this narrative. The smaller curb radii are a result of providing curb extensions to slow traffic and provide safer intersection crossing for pedestrians.

12.04.060 - Street design—Off-site street improvements.

During consideration of the preliminary plan for a development, the decision maker shall determine whether existing streets impacted by, adjacent to, or abutting the development meet the city's applicable planned minimum design or dimensional requirements. Where such streets fail to meet these requirements, the decision-maker shall require the applicant to make proportional improvements sufficient to achieve conformance with minimum applicable design standards required to serve the proposed development.

Response: No improvements to existing streets should be needed as a result of the site redevelopment.

12.04.065 - Street design—Half street.

Response: No half-streets are proposed. This standard is not applicable.

12.04.070 - Street design—Cul-de-sacs and dead-end streets.

Response: No cul-de-sacs or dead end streets are proposed. This standard is not applicable.

12.04.075 - Street design—Street names.

Except for extensions of existing streets, no street name shall be used which will duplicate or be confused with the name of an existing street. Street names shall conform to the established standards in the city and shall be subject to the approval of the city.

Response: Harley Street is a continuous extension of an existing street, and Rock Street follows the alignment of existing Rock Street to the east, although they are not continuous. The applicants believe that the proposed Columbine Street does not duplicate or would cause confusion with any existing street; there is only a Columbine Court in Oregon City. The proposed street connecting proposed Columbine Street and Holcomb Boulevard has not been named. The proposed street names relate to an historic plat of the project area.

12.04.080 - Street design—Grades and curves.

Grades and center line radii shall conform to the standards in the city's street design standards and specifications.

Response: The proposed design complies with the standards. Grades are relatively flat, as shown on Sheet A2.02. Only one street (proposed connection between proposed Columbine and Holcomb Boulevard) has a curve. The curve radius is 250 feet; the street is designed for 25 mph and includes superelevation.

12.04.085 - Street design—Development abutting arterial or collector street.

Where development abuts or contains an existing or proposed arterial or collector street, the decision maker may require: access control; screen planting or wall contained in an easement or otherwise protected by a restrictive covenant in a form acceptable to the decision maker along the rear or side property line; or such other treatment it deems necessary to adequately protect residential properties or afford separation of through and local traffic. Reverse frontage lots with suitable depth may also be considered an option for residential property that has arterial frontage. Where access for development abuts and connects for vehicular access to another jurisdiction's facility then authorization by that jurisdiction may be required.

Response: No collectors or arterials are proposed. The project site abuts a collector (Front Avenue) and an arterial (Holcomb Boulevard). No residential uses are proposed along the arterial. Proposed accesses meet City standards with the exception of the proposed driveway for the retail space on Holcomb Boulevard. The applicants seek an adjustment to that standard as explained elsewhere in this narrative.

12.04.090 - Street design—Pedestrian and bicycle safety.

Where deemed necessary to ensure public safety, reduce traffic hazards and promote the welfare of pedestrians, bicyclists and residents of the subject area, the decision maker may require that local streets

be so designed as to discourage their use by nonlocal automobile traffic.

All crosswalks shall include a large vegetative or sidewalk area which extends into the street pavement as far as practicable to provide safer pedestrian crossing opportunities. These curb extensions can increase the visibility of pedestrians and provide a shorter crosswalk distance as well as encourage motorists to drive slower. The decision maker may approve an alternative design that achieves the same standard for constrained sites or where deemed unnecessary by the city engineer.

Response: Curb extensions are provided on all local streets within the site and along public streets abutting the site. The proposed street connecting Holcomb Boulevard and proposed Columbine Street is offset from the proposed extension of Harley Street, which should discourage its use for non-local automobile traffic, while both proposed streets would provide a traffic-calmed north-south route for bicyclists through the site and continuing on Harley Street north of the site.

12.04.095 - Street design—Curb cuts.

To assure public safety, reduce traffic hazards and promote the welfare of pedestrians, bicyclists and residents of the subject area, such as a cul-de-sac or dead-end street, the decision maker shall be authorized to minimize the number and size of curb cuts (including driveways) as far as practicable where any of the following conditions are necessary:

A. To provide adequate space for on-street parking;

B. To facilitate street tree planting requirements;

C. To assure pedestrian and vehicular safety by limiting vehicular access points; and

D. To assure that adequate sight distance requirements are met.

Where the decision maker determines any of these situations exist or may occur due to approval of a proposed development, single residential driveway curb cuts shall be limited to twelve feet in width adjacent to the sidewalk and property line and may extend to a maximum of eighteen feet abutting the street pavement to facilitate turning movements. Shared residential driveways shall be limited to twenty-four feet in width adjacent to the sidewalk and property line and may extend to a maximum of thirty feet abutting the street pavement to facilitate turning movements. Non-residential development driveway curb cuts in these situations shall be limited to the minimum required widths based on vehicle turning radii based on a professional engineer's design submittal and as approved by the decision maker.

Response: Curb cuts are limited by placing garages and parking areas along alleys.

12.04.100 - Street design—Alleys.

Public alleys shall be provided in the following districts R-5, R-3.5, R-2, MUC-1, MUC-2 and NC zones unless other permanent provisions for private access to off-street parking and loading facilities are approved by the decision maker. The corners of alley intersections shall have a radius of not less than ten feet.

Response: Private alleys are provided for access to off-street parking facilities in the site, which is zoned R-3.5 or MUC-1. The alleys will be accessed with driveways. The applicant seeks an adjustment to allow private alleys, instead of public, as described elsewhere in this narrative.

12.04.105 - Street design—Transit.

Streets shall be designed and laid out in a manner that promotes pedestrian and bicycle circulation. The applicant shall coordinate with Tri-Met where the application impacts transit streets as identified on Figure 5.7: Public Transit System Plan of the Oregon City Transportation System Plan. Pedestrian/bicycle

access ways shall be provided as necessary in conformance with the requirements in Section 17.90.220 of this Code and Chapter 12.24 to minimize the travel distance to transit streets and stops and neighborhood activity centers. The decision maker may require provisions, including easements, for transit facilities along transit streets where a need for bus stops, bus pullouts or other transit facilities within or adjacent to the development has been identified.

Response: The proposed street grid improves connectivity through the site and promotes pedestrian and bicycle circulation and transit access. Sidewalk improvements on the streets abutting the site also promote pedestrian circulation. The development plan retains a path connecting to Steve's Select Market, providing a direct pedestrian connection to transit stops along Holcomb Boulevard, the only transit street in proximity to the site. The proposed street connecting proposed Columbine Street and Holcomb Boulevard also improves access to Holcomb Boulevard. Sidewalk improvements on Apperson Boulevard and Front Avenue improve transit access to bus stops located where those streets intersect Holcomb Boulevard.

12.04.110 - Street design—Planter strips.

All development shall include vegetative planter strips that are five feet in width or larger and located adjacent to the curb….

To promote and maintain the community tree canopy adjacent to public streets, trees shall be selected and planted in planter strips in accordance with Chapter 12.08, Street Trees….

Response: Planter strips complying with this standard are shown on the site plans (e.g., Sheet C2.1). Street trees will be planted in accordance with City standards as development occurs.

12.04.120-140 – Obstructions.

Response: No obstructions are proposed within the streets or sidewalks.

12.04.050 - Street and alley vacations—Cost.

At the time of filing a petition for vacation of a street, alley or any part thereof, a fee as established by city commission resolution shall be paid to the city.

Response: The applicants will file for vacation of the existing on-site streets (A, B, C, and D streets) if the Concept Development Plan is approved and funding is secured for site redevelopment. Appropriate fees will be paid to the City at that time.

12.04.160 - Street vacations—Restrictions.

The commission, upon hearing such petition, may grant the same in whole or in part, or may deny the same in whole or in part, or may grant the same with such reservations as would appear to be for the public interest, including reservations pertaining to the maintenance and use of underground public utilities in the portion vacated.

Response: No response required.

2.12 OCMC 12.08 – Public and Street Trees

12.08.015 - Street tree planting and maintenance requirements.

All new construction or major redevelopment shall provide street trees adjacent to all street frontages. Species of trees shall be selected based upon vision clearance requirements, but shall in all cases be selected from the Oregon City Street Tree List or be approved by a certified arborist. If a setback sidewalk has already been constructed or the Development Services determines that the forthcoming

street design shall include a setback sidewalk, then all street trees shall be installed with a planting strip. If existing street design includes a curb-tight sidewalk, then all street trees shall be placed within the front yard setback, exclusive of any utility easement.

Response: The Concept Development Plan includes planter strips along all street frontages for street trees. Specific street tree plantings, species selection, etc. for compliance with this chapter will be proposed at the Detailed Development Plan stage.

12.08.040 -Heritage Trees and Groves.

Response: There are no designated heritage trees on the site, and none are proposed at this time.

APPENDIX

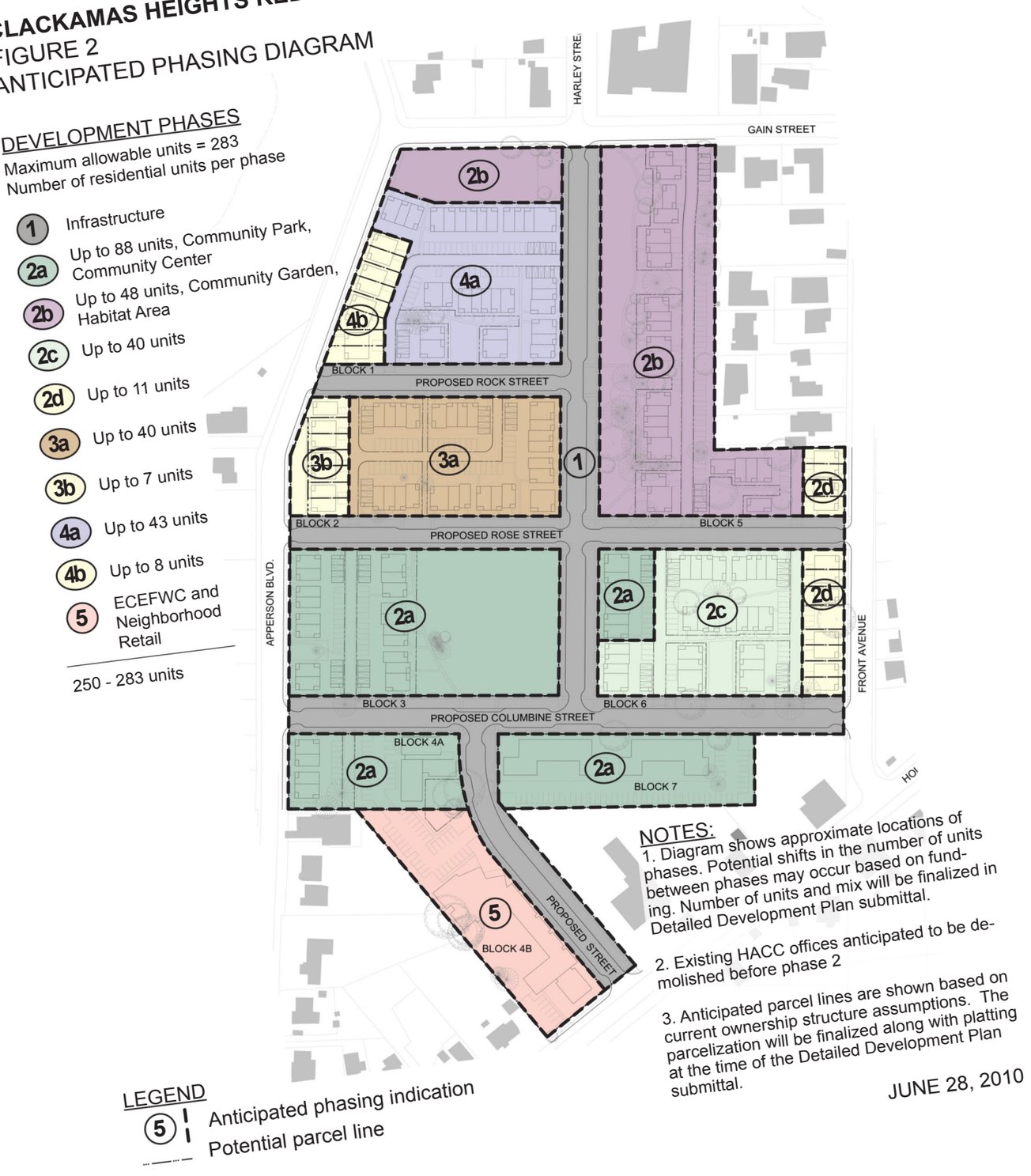
Includes:

- Housing Authority of Clackamas County Background Information and 2009 Annual Report
- Letter from Oregon Department of Transportation
- Parking Demand Calculations
- Historic Resources Map
- Letter from State Historic Preservation Officer (SHPO)
- Letter (email) regarding Tribal Review
- Public Participation Plan
- Public Meetings Record
- Letters of Support, including list of residents who submitted postcards
- Park Place Neighborhood Association Meeting Notes and Sign-in Sheet
- Title Report, Clackamas Heights (Tax Lot 700 on Assessor's Map 2S2E29AD)
- Title Report, Morrow Parcels (Tax Lots 400 and 500 on Assessor's Map 2S2E29DA)

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN
FIGURE 1
PROPOSED EASEMENTS DIAGRAM

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 2
ANTICIPATED PHASING DIAGRAM

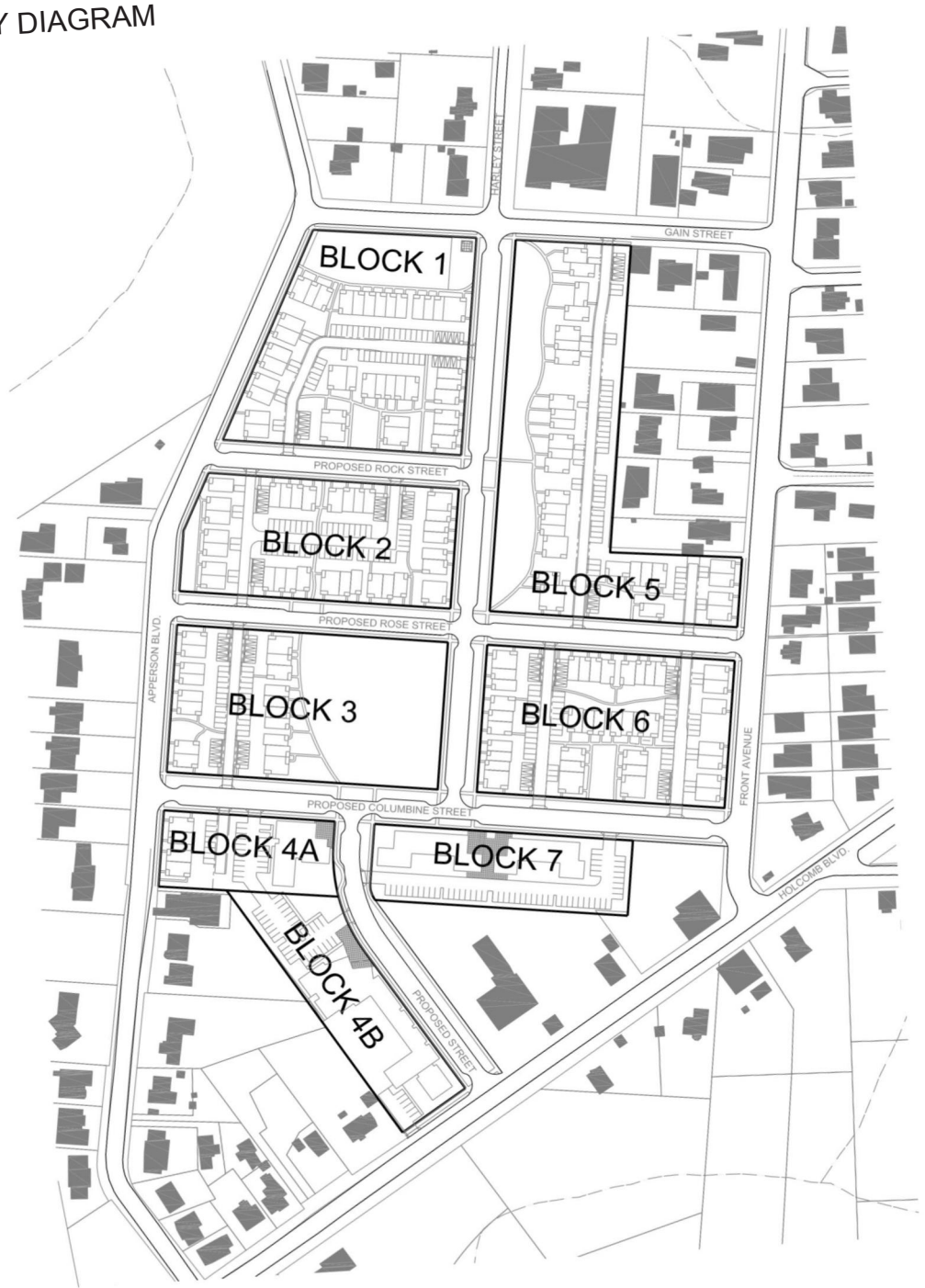


JUNE 28, 2010

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 3

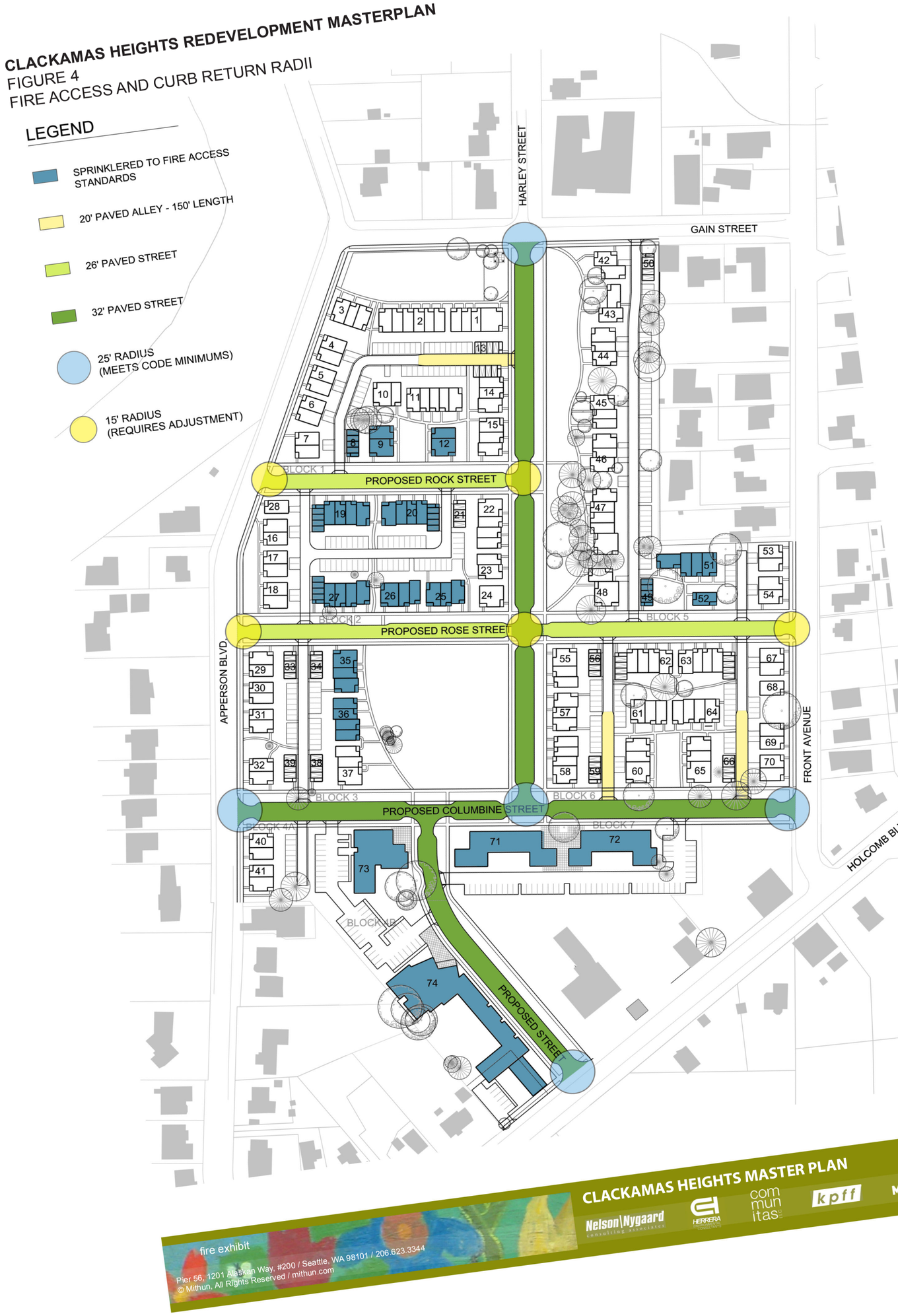
BLOCK KEY DIAGRAM



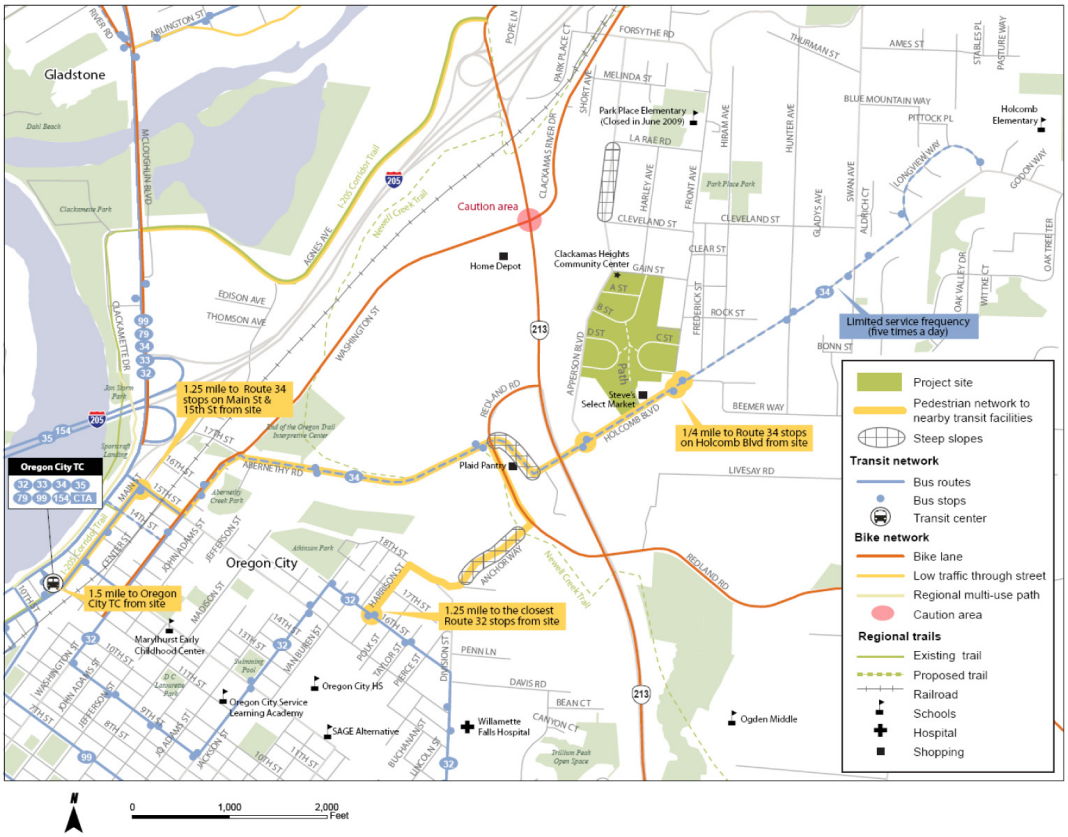
CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 4

FIRE ACCESS AND CURB RETURN RADII



CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN
FIGURE 6
EXISTING BICYCLE AND TRANSIT CONDITIONS



CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 6

ON-SITE DENSITY TRANSFER DIAGRAM

DENSITY TRANSFER SCENARIO

Parking Required for Additional Units in On-Site Density Transfer Scenario

Use	Location in Site	Building Area (1000 sf or Units)	Units	Off-Street Parking Requirement (# spaces)	Spaces Required	Parking Provided	Net Spaces	Notes
Retail	4B	2.0	1000 sf GLA	4.1	7	9	2	18% reduction used (1,3); 3 on-street spaces on Holcomb (2)
ECEFWC (Daycare)	4B	14.0	1000 sf GLA	2.0	23	21	-2	18% reduction used (1,3); 11 on-street spaces on proposed ROW (2); 4 of off-street spaces in block 4A (4)
36 x 1bd multifamily residential units	4B	36	Units	1.25	45	45	0	9 of off-street spaces in block 7 (4)
8 x 2bd multifamily residential units	4B	8	Units	1.50	12	12	0	4 of off-street spaces in block 4A (4)
Totals					**87**	**87**	**0**	

Specific Notes

(1) Reductions for mixed use (captive market effects) based on an up to 10% reduction allowed by Oregon City for commercial development in proximity to a multifamily housing development of 80 units or more applied to the parking generation rates. Source: Oregon City Municipal Code 17.52.010 (A): "The community development director may reduce the required number of parking stalls up to ten percent when it is determined that a commercial business center or multi-family project is adjacent to or within on thousand feet of an existing or planned public transit. Also, if a commercial center is within one thousand feet of a multi-family project, with over eighty units and pedestrian access, the parking requirements may be reduced by ten percent." In many cases captive market effects are expected to be significantly larger.

(2 Abutting on-street parking counted towards the minimum requirements. Source: Oregon City Municipal Code 17.52.010 (D): "Parking may be counted toward the minimun standards... when it is on the block face abutting the subject land use."

(3) An 8% reduction in parking demand was estimated based on a shared parking analysis of peak weekday and weekend demand by time-of-day using standard ITE hourly demand estimates for each use in the mixed use zone. For example, peak demand for a day care use occurs between 8-10 AM and 5-7 PM on weekdays while peak demand for a restaurant (retail use) occurs after 6 PM on both weekdays and weekends. A minimum of one off-street space is assumed to be dedicated for each residential unit and not available for sharing. The library rate was substituted for the community center rate because the ITE Manual does not provide hourly information for a communit center use. Oregon City allows an up to 50% reduction for mixed uses (OCMC 17.52.010(C)1 and requires that shared parking facilities be within 1,000 feet of potential uses (OCMC 17.52.010(C)2. Source: Oregon City Municipal Code 17.52.010(C): "1. Mixed uses. If more than one type of land use occupies a single structure or parcel of land, the total requirements for off-street automobile parking shall be the sum of the requirements for all uses, unless it can be shown that the peak parking demands are actually less... In that case, the total requirements shall be reduced accordingly, up to a maximum reduction of fifty percent, as determined by the community development director. 2. Shared parking. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlay (e.g., uses primarily of a daytime versus nighttime nature), that the shared parking facility is within one thousand feet of the potential uses, and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use."

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN
FIGURE 5
DENSITY TRANSFER DIAGRAM CONTINUED

(4) Overall, Blocks 4A and 7 were calculated to have 22 spaces above the minimum parking requirements, including abutting on-street parking. All of the nine possible spaces in Block 4A were counted and 8 of 13 possible spaces were counted from Block 7. Based on Oregon City Municipal Code 17.52.010 (C2) a shared parking facility may be within 1000 feet of a potential use.

General Notes

GLA = Gross Leasable Area

Address	13900 S. Gain Street	13927 Holcomb Blvd. Tax lots 400 & 500	TOTAL FOR SITE
Zoning designation	R-3.5	MUC-1	
Gross Land Area	846,323 gsf	81,708 gsf	928,031 gsf
Dedicated Public ROW Area*	7,509 sf	2,743 sf	10,252 sf
Net Development Area	838,814 nsf	78,965 nsf	917,779 nsf
Allowed development 2,000 sf retail	239 residential units	44 residential units (1/3500 sf) 14,000 sf ECEFWC	283 residential units 2,000 sf retail 14,000 sf ECEFWC
Proposed development	283 residential units 6,000 sf community center / property management offices	0 residential units 2,000 sf retail 14,000 sf ECEFWC	283 residential units 6,000 sf community center / property management offices 2,000 sf retail 14,000 sf ECEFWC

* NOTE: additional public ROW will be dedicated along existing abutting public streets: Holcomb, Apperson, Front, and Gain per the City street standards. This public ROW to be removed from total land area.

Residential On-Site Density Transfer Study for the Morrow Parcels

- **Assuming: 2 floors of housing over the Childcare**
  1 bd 23'x30' = 690 nsf (82% of total)
  2 bd 30'x30' = 900 nsf (18% of total)

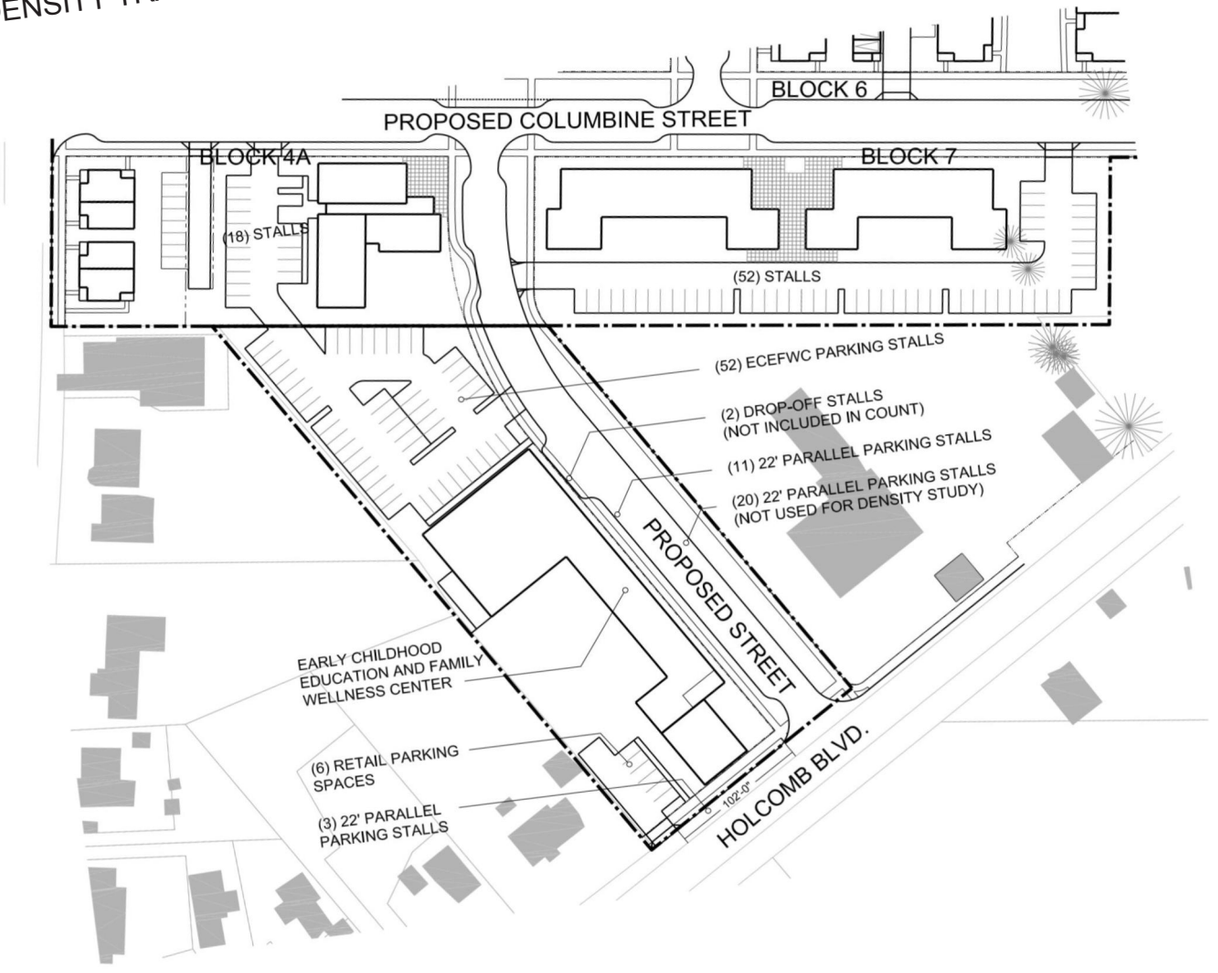
- **Units per floor**
  1 bd 18 units (82%)
  2 bd 4 units (18%)
  Total per floor = 22 units
  Total = 44 units

All 44 units can be built on the MUC-1 zoning, parcels 400-500, but these units will be placed on the R-3.5 near the MUC-1. The MUC-1 will only include the 2000 sf retail and 14,000sf Early Childhood Education and Family Wellness Center.

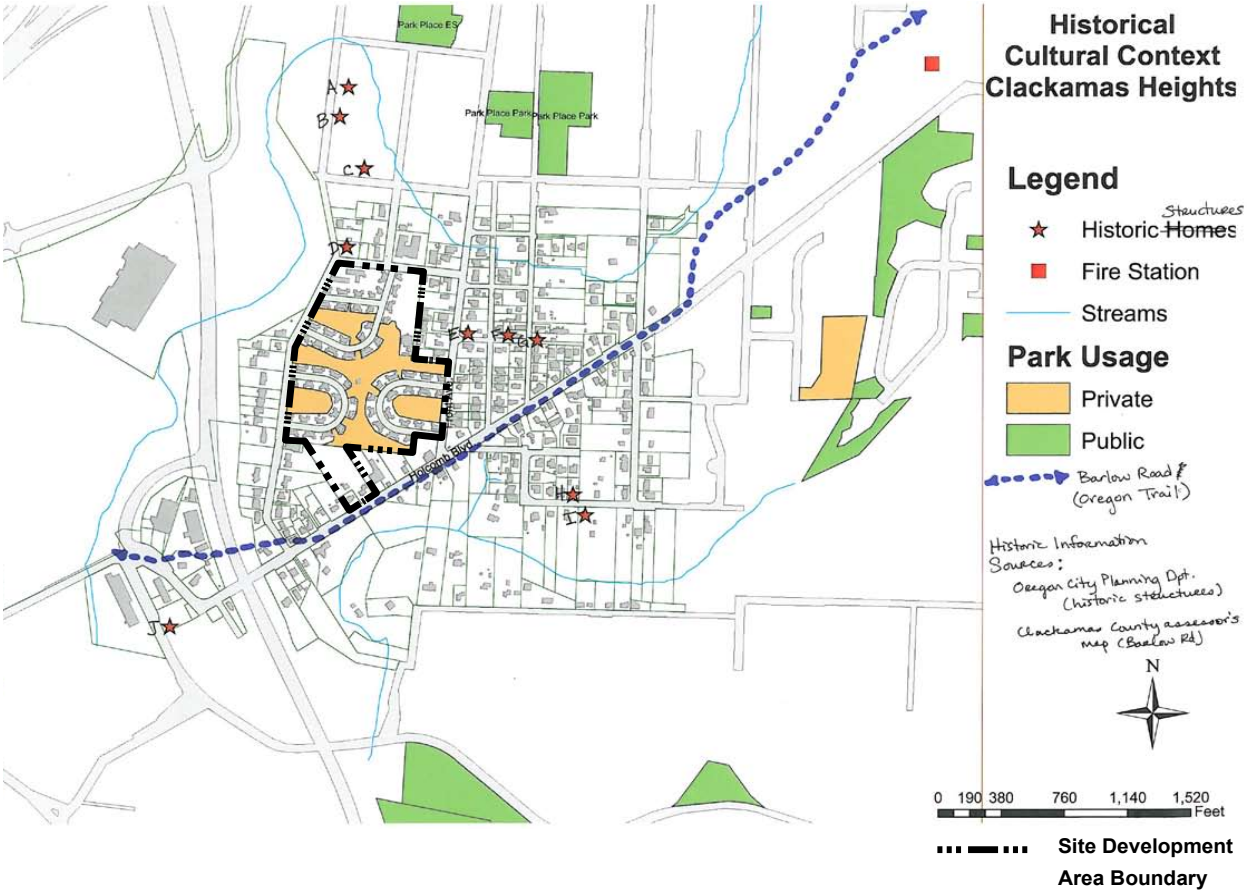
- **Landscaping Summary**
  Required: 20% of lot area, 80% max. coverage
  81,800 sf * 20% = 16,360 sf required.
  25,000 sf provided: 30% Landscaping, 70% Coverage

CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN

FIGURE 5
DENSITY TRANSFER DIAGRAM CONTINUED



CLACKAMAS HEIGHTS REDEVELOPMENT MASTERPLAN
FIGURE 7
HISTORIC RESOURCES MAP



Historic Structures
No designated historic structures are located within 100 feet of the site development area for the Clackamas Heights Redevelopment Masterplan, except for D. on the map above, 16322 S. Apperson Blvd, the John Kent House, built c.1891. This home is designated by the Oregon City Planning Department as a "Landmark Outside of the District", and is not within the site development area.

The Barlow Road, the last overland segment of the Oregon Trail, has been identified as having significant national importance because of the key transportation role it played in settling this region. While several maps and reports of multiple routes exist, in 1993 the government designated the earliest known segments of the trail as the current official historic landmark. The official historic route of the Barlow Road is identified on Clackamas County tax maps. Part of the original Barlow Road, a designated historic landmark, runs along Holcomb Road just south of Clackamas Heights. Its alignment is represented on the above map.

Additional historic homes designated as "Landmarks Outside of the District" are located in the general neighborhood surrounding the site and are labeled on the above map. Many were built before 1900.

References: Oregon City Planning Department Historic Info Website. Oregon City Website. http://www.oregoncityparks.org/planning/15824-s-apperson-first-congregational-church-park-place, Beckham, Stephen Dow and Richard C. Hanes. 1992. The Barlow Road: Clackamas County, Oregon: Inventory Project Historic Context 1845-1919. Prepared for the Clackamas County Department of Transportation and Development. End of the Oregon Trail Website. Viewed December 14, 2009. Historic Oregon City. http://www.historicoregoncity.org/HOC/index.php?option=com_content&view=category&id=75&Itemid=80.

CLACKAMAS HEIGHTS MASTER PLAN

CONCEPT DEVELOPMENT PLAN

JULY 19, 2010

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THE CITY OF OREGON CITY
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MAPS AND PLANS

EXISTING CONDITIONS

A0.01	EXISTING VICINITY MAP
A0.02	EXISTING NATURAL RESOURCES PLAN
C0.1	ZONING AND EXISTING LOT SIZE PLAN
C0.2	EXISTING STREETS AND EASEMENTS PLAN
C0.3	EXISTING SITE TOPOGRAPHY
C0.4	EXISTING STRUCTURES PLAN
C1.1	EXISTING PUBLIC UTILITIES PLAN
C1.2	EXISTING PUBLIC UTILITIES PLAN
C4.1	EXISTING TREE SURVEY
C4.2	EXISTING TREE SURVEY
C4.3	EXISTING TREE TABLE
C4.4	EXISTING TREE TABLE

PROPOSED DEVELOPMENT

A1.01	PROPOSED SITE PLAN
A1.02	PROPOSED OPEN SPACE PLAN
C2.1	PROPOSED SITE CIRCULATION PLAN
C3.1	PROPOSED STORM DRAINAGE CONCEPT PLAN
C3.2	PROPOSED PUBLIC WATER & SEWER CONCEPT PLAN
T1.1	PROPOSED VEHICLE CIRCULATION PLAN
T1.2	PROPOSED BICYCLE CIRCULATION PLAN
T1.3	PROPOSED PEDESTRIAN CIRCULATION PLAN
T1.4	PROPOSED BICYCLE PARKING LOCATIONS

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

TS
EC
MS
LF, LC, SA, DJ

COVERSHEET

09271.00

JULY 19, 2010

G0.00
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PREPARED FOR:
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NO.	DATE	REVISION

PROJECT DIRECTOR: TS
PROJECT MANAGER: EC
PROJECT PLANNER: MS
PROJECT TEAM: LF, LC, SA, DJ

EXISTING VICINITY MAP

PROJECT NO. 09271.00
DATE JUNE 21, 2010

SHEET NUMBER A0.01
CONCEPT DEVELOPMENT PLAN

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LEGEND

NATURAL RESOURCE OVERLAY DISTRICT BOUNDARY
** FROM OREGON CITY GIS DEPARTMENT

EXISTING STREAM

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 9704

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

NO.	DATE	REMARK

PROJECT MANAGER: TS
PROJECT DESIGNER: EC
PROJECT PLANNER: MS
PROJECT TEAM MEMBERS: LF, LC, SA, DJ
DATE:

EXISTING NATURAL RESOURCES PLAN

PROJECT NO. 09271.00
DATE JUNE 21, 2010

A0.02
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Fax: (503) 274-4681

PROJECT:
CLACKAMAS HEIGHTS
MASTER PLAN

LOCATION:
13930 GAIN STREET,
OREGON CITY, OR
97045

PREPARED FOR:
THE HOUSING
AUTHORITY OF
CLACKAMAS COUNTY

JAL
JAL
DH
DH, SEE
JAL

ZONING AND
EXISTING LOT SIZE
PLAN

09271.00

JUNE 21, 2010

C0.1
CONCEPTUAL DEVELOPMENT
PLAN

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File: I:\e\p\2009\301174-HACC MP\CAD\PLOT\Land-Use\Concept Plans\9174_C0.1_Zoning-Plan.dwg TAB:C0.1
Plotted: 6/25/10 at 11:22am By: hmorra
XREFs: 9174site-22x34 9174xsv 9174xZone

Existing Land Use	Approximate # Spaces
Residential Units (1-3 BR)	95
Community Room & Property Management Offices	21
HACC Warehouse & Shop	8
HACC Administrative Offices	31

EXISTING CONDITIONS

- TRANSIT SERVICE (ROUTE 34, LIMITED SERVICE)
- PEDESTRIAN CIRCULATION (SIDEWALK/PATH)
- BICYCLE PARKING
- AUTOMOBILE PARKING
- TRANSIT STOP
- (38) (549 SQ. FT. per unit) TYPICAL ONE BEDROOM DUPLEX
- (50) (665 SQ. FT. per unit) TYPICAL TWO BEDROOM DUPLEX
- (22) (841 SQ. FT.) TYPICAL THREE BEDROOM HOUSE

GAIN STREET
ROCK CREEK
ROCK CREEK
MOAT AVENUE
17 STREET
17 STREET
17 STREET

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Fax: (503) 274-1851

PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
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EXISTING SITE TOPOGRAPHY PLAN

09271.00

JUNE 21, 2010

C0.3
CONCEPTUAL DEVELOPMENT PLAN

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File: I:\c\p\2009\309174-HACC MP\CAD\PLOT\Land-Use\Concept Plans\9174_C0.3_Ex-topo-plan.dwg TAB:C0.3
Plotted: 6/25/10 at 11:27am By: Hmarre
XREFs: 9174xdb-22x34 9174xsv 9174xBndy

SURVEY LEGEND
BUILDING OUTLINE
RIGHT-OF-WAY LINE
EASEMENT LINE
LOT LINE
PROPERTY LINE
CYCLONE FENCE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND ELECTRICAL LINE
UNDERGROUND TELEPHONE LINE
UNDERGROUND CABLE TV LINE
STORM LINE
SANITARY SEWER LINE
WATER LINE
GAS LINE
OVERHEAD UTILITY LINES
CABLE TV PEDESTAL
ELECTRICAL BOX
ELECTRICAL METER
TRANSFORMER
GUY ANCHOR
GUY POLE
LUMINAR
POWER POLE
OVERHEAD LIGHT
POWER POLE W/LIGHT
GAS METER
GAS RISER
GAS VALVE
SANITARY MANHOLE
STORM MANHOLE
CATCH BASIN
CURB INLET
AREA DRAIN
SANITARY/STORM CLEAN OUT
TELEPHONE MANHOLE
FIBER OPTIC MANHOLE
TELEPHONE VAULT
TELEPHONE RISER
FIBER OPTIC VAULT
WATER VALVE
FIRE HYDRANT
WATER METER
WATER VAULT
SITE LEGEND
SITE BOUNDARY
EXISTING BUILDING TO BE REMOVED
SCALE
1 INCH = 100 FEET
100 0 100 200
NOT FOR CONSTRUCTION
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CLACKAMAS HEIGHTS MASTER PLAN
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PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY
JAL
JAL
DH
DH, SEE
JAL
EXISTING STRUCTURES PLAN
09271.00
JUNE 21, 2010
C0.4
CONCEPTUAL DEVELOPMENT PLAN
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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
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PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

DESIGN DEVELOPED	JAL
DRAWN	JAL
CHECKED	DH
APPROVED FOR ISSUE	DH, SEE
DATE	JAL

EXISTING PUBLIC UTILITIES PLAN

PROJECT NO.	09271.00
DATE	JUNE 21, 2010

C1.1
CONCEPTUAL DEVELOPMENT PLAN

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

PROJECT MANAGER	JAL
PROJECT MANAGER	JAL
DRAWN	DH
CHECKED BY	DH, SEE
QA/QC	JAL

EXISTING PUBLIC UTILITIES PLAN

PROJECT NO.	09271.00
DATE	JUNE 21, 2010

C1.2
CONCEPTUAL DEVELOPMENT PLAN

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TREE NO. AND PRESERVATION RATING
REFER TO TREE SCHEDULE ON SHEET C3.2
HIGH VALUE TREE, HIGH PRESERVATION PRIORITY
MODERATE VALUE TREE, MODERATE PRESERVATION PRIORITY
LOW VALUE TREE, LOW PRESERVATION PRIORITY
HAZARDOUS TREE
*NOTE: NOT ALL HAZARDOUS TREES NEED TO BE REMOVED. PRUNING AND THINNING OF SOME TOPPED TREES MAY ADEQUATELY MITIGATE CURRENT HAZARDOUS RATING.
SCALE
1 INCH = 30 FEET
50 0 50 100
MATCHLINE SEE SHT. C4.2
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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN
LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045
PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY
JAL
JAL
DH
DH, SEE
JAL
EXISTING TREE SURVEY
09271.00
JUNE 21, 2010
C4.1
CONCEPTUAL DEVELOPMENT PLAN
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MATCHLINE SEE SHT. C4.1
TREE NO. AND PRESERVATION RATING
REFER TO TREE SCHEDULE ON SHEET C3.2
HIGH VALUE TREE, HIGH PRESERVATION PRIORITY
MODERATE VALUE TREE, MODERATE PRESERVATION PRIORITY
LOW VALUE TREE, LOW PRESERVATION PRIORITY
HAZARDOUS TREE
*NOTE: NOT ALL HAZARDOUS TREES NEED TO BE REMOVED. PRUNING AND THINNING OF SOME TOPPED TREES MAY ADEQUATELY MITIGATE CURRENT HAZARDOUS RATING.
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CONCEPTUAL DEVELOPMENT PLAN
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TAG	COMMON NAME	BOTANICAL NAME	DBH	PRESERVATION	COMMENTS
1	Douglas-Fir	*Pseudotsuga menziesii*	48.5	HAZARD	Root Rot West Side
2	Garry Oak	*Quercus garryana*	24.5	High	
3	Douglas-Fir	*Pseudotsuga menziesii*	48.0	Moderate	
4	Cherry	*Prunus spp.*	18.5	Low	
5	Big Leaf Maple	*Acer macrophyllum*	11.5	Low	
6	Big Leaf Maple	*Acer macrophyllum*	10.0	Low	Necrotic tissue on SW side
7	Norway Maple	*Acer platanoides*	54.0	Moderate	Included Bark, 2 cables, needs 3rd cable
8	Cherry	*Prunus spp.*	14.0	Low	Included Bark, Root Rot
11	Siberian Elm	*Ulmus pumila*	21.0	HAZARD	Double Top (DBH @ 3') Included Bark
12	Siberian Elm	*Ulmus pumila*	9.0	Moderate	
24	Douglas-Fir	*Pseudotsuga menziesii*	53.0	HAZARD	Three Top
25	Big Leaf Maple	*Acer macrophyllum*	41.0	HAZARD	Vandalism
26	Douglas-Fir	*Pseudotsuga menziesii*	36.0	HAZARD	Root Rot, Galls, Stress Cracks
27	Douglas-Fir	*Pseudotsuga menziesii*	41.0	Low	Remove North Co-cominant Stem
28	Black Locust	*Robinia pseudoacacia*	28.0	Moderate	Multi-stem, Remove Co-dominant Stem
29	Douglas-Fir	*Pseudotsuga menziesii*	38.0	Moderate	
30	Douglas-Fir	*Pseudotsuga menziesii*	26.5	HAZARD	Vandalism
31	Norway Maple	*Acer platanoides*	26.5	Moderate	
32	Grand Fir	*Abies grandis*	17.0	Low	Topped
33	Western-Red-Cedar	*Thuja plicata*	31.0	Moderate	Multi-stem (DBH @ 3')
34	Magnolia	*Magnolia spp.*	11.5	Moderate	
35	Garry Oak	*Quercus garryana*	26.0	Moderate	Pruning Recommended
36	Douglas-Fir	*Pseudotsuga menziesii*	37.0	Moderate	
37	Douglas-Fir	*Pseudotsuga menziesii*	41.0	Moderate	Vandalism (Insulating Foam?)
38	Douglas-Fir	*Pseudotsuga menziesii*	47.0	HAZARD	Triple Top
39	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	16.5	HAZARD	Fungi in Circle approx. 8-10' from trunk
40	Poplar	*Populus deltoides*	47.0	Low	Root Rot, Power Lines
41	Birch	*Betula spp.*	13.0	Low	Bore Damage
42	Western-Red-Cedar	*Thuja plicata*	63.0	Moderate	Triple Top, Included Bark
43	Birch	*Betula spp.*	19.0	HAZARD	Bore Damage
44	English Walnut	*Juglans regia*	21.5	Low	Frost Cracks (DBH @ 3')
45	Cherry	*Prunus spp.*	40.0	HAZARD	Chainsaw Damage, Root Rot, (DBH @ 3')
46	Big Leaf Maple	*Acer macrophyllum*	52.0	Moderate	Multi-stem, Included Bark
47	Douglas-Fir	*Pseudotsuga menziesii*	22.0	Moderate	
48	Douglas-Fir	*Pseudotsuga menziesii*	18.0	Moderate	
49	Douglas-Fir	*Pseudotsuga menziesii*	23.0	Moderate	
50	Douglas-Fir	*Pseudotsuga menziesii*	23.0	Moderate	
51	Douglas-Fir	*Pseudotsuga menziesii*	21.0	Moderate	
52	Douglas-Fir	*Pseudotsuga menziesii*	22.5	Moderate	
53	Douglas-Fir	*Pseudotsuga menziesii*	18.5	Low	
54	Douglas-Fir	*Pseudotsuga menziesii*	18.0	HAZARD	
55	Douglas-Fir	*Pseudotsuga menziesii*	18.0	Moderate	
56	Douglas-Fir	*Pseudotsuga menziesii*	21.0	Moderate	
57	Douglas-Fir	*Pseudotsuga menziesii*	18.5	Moderate	
58	Douglas-Fir	*Pseudotsuga menziesii*	23.5	Low	
59	Douglas-Fir	*Pseudotsuga menziesii*	20.0	Moderate	
60	Douglas-Fir	*Pseudotsuga menziesii*	19.0	Moderate	
61	Douglas-Fir	*Pseudotsuga menziesii*	26.5	HAZARD	3 stem, galls
62	Douglas-Fir	*Pseudotsuga menziesii*	24.5	Moderate	
63	Douglas-Fir	*Pseudotsuga menziesii*	23.5	Low	wind damage?
64	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	11.5	Moderate	Bark Damage, Reverse Flare, (DBH @ 4')
65	Autumnalis Cherry	*Prunus subhirtella* 'Autumnalis'	8.0	Low	Included Bark
66	Garry Oak	*Quercus garryana*	37.0	HAZARD	Branch Dieback, Conks, Rust
67	Douglas-Fir	*Pseudotsuga menziesii*	25.5	Low	Topped
68	Douglas-Fir	*Pseudotsuga menziesii*	42.0	Low	Multi-stem
69	Douglas-Fir	*Pseudotsuga menziesii*	29.0	HAZARD	Double Top
70	Holly	*Ilex spp.*	18.0	Low	DBH @ 2'
71	Douglas-Fir	*Pseudotsuga menziesii*	44.0	Moderate	
72	Douglas-Fir	*Pseudotsuga menziesii*	43.0	Moderate	
73	Grand Fir	*Abies grandis*	48.5	Low	Pruning Recommended
74	Prune	*Prunus spp.*	8.0	Moderate	
75	Douglas-Fir	*Pseudotsuga menziesii*	28.0	HAZARD	Topped
76	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	7.5	Moderate	
77	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	8.5	Moderate	
78	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	20.0	Moderate	Multi-stem (DBH @ 2')
79	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	7.0	Moderate	
80	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	10.5	Moderate	
81	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	14.0	Moderate	
82	Cherry	*prunus spp.*	17.5	Low	DBH @ 3'
83	Douglas-Fir	*Pseudotsuga menziesii*	15.0	Low	
84	Cherry	*Prunus spp.*	34.0	Low	Multi-stem (DBH @ 1')
85	Douglas-Fir	*Pseudotsuga menziesii*	33.5	High	
86	Port-Orford-Cedar	*Chamaecyparis lawsoniana*	11.0	Moderate	Double Top
87	Incense-Cedar	*Calocedrus decurrens*	32.0	Moderate	
88	Douglas-Fir	*Pseudotsuga menziesii*	38.5	HAZARD	Double Top
89	Holly	*Ilex spp.*	9.0	Low	
90	Holly	*Ilex spp.*	13.0	Low	DBH @ 1'
91	Holly	*Ilex spp.*	13.5	Low	DBH @ 1'
92	Douglas-Fir	*Pseudotsuga menziesii*	30.0	HAZARD	Multi-stem, Double Top
93	Oak	*Quercus spp.*	12.5	Moderate	
94	Douglas-Fir	*Pseudotsuga menziesii*	23.0	Moderate	
95	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	8.5	Low	
96	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	19.0	Low	Girdling Roots, (DBH @ 2')
97	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	14.5	Low	(DBH @ 1')
98	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	20.5	Moderate	Above Ground Roots, (DBH @ 1')
99	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	23.5	Moderate	Included Bark, Above Ground Roots
100	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	19.0	Low	Included Bark, Circling Roots
101	Thundercloud Plum	*Prunus spp.*	25.5	Low	Multi-stem (DBH @ 1')
102	Ash	*Fraxinus spp.*	9.0	Moderate	
103	Ash	*Fraxinus spp.*	11.0	Moderate	
104	Ash	*Fraxinus spp.*	9.5	Moderate	
105	Ash	*Fraxinus spp.*	11.0	Moderate	
106	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	22.0	Low	Multi-stem, Vandalism, Repeated Root Injury, Girdling Roots (DBH @ 1')
107	Norway Maple	*Acer platanoides*	11.0	Moderate	
108	Douglas-Fir	*Pseudotsuga menziesii*	23.5	Moderate	
109	Douglas-Fir	*Pseudotsuga menziesii*	19.5	Moderate	
110	Douglas-Fir	*Pseudotsuga menziesii*	21.0	Moderate	
111	Douglas-Fir	*Pseudotsuga menziesii*	22.5	Moderate	Minor Construction Damage
112	Douglas-Fir	*Pseudotsuga menziesii*	18.0	Moderate	Non-pathogenic Fungi
113	Douglas-Fir	*Pseudotsuga menziesii*	25.5	HAZARD	Low Triple Stem
114	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	20.0	Moderate	Fungi
115	Maple	*Acer spp.*	7.0	Moderate	Girdling Roots
116	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	20.0	Moderate	Girdling Roots
117	NO TREE	*LOST TAG*			
118	Douglas-Fir	*Pseudotsuga menziesii*	40.0	Moderate	
119	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	21.5	Low	Girdling Roots, Fungi, (DBH @ 2')
120	Kwanzan Cherry	*Prunus serrulata* 'Kwanzan'	27.0	HAZARD	Included Bark, Stress Fracture, (DBH @ 2')
121	Cherry	*Prunus spp.*	29.5	HAZARD	Included Bark
122	Douglas-Fir	*Pseudotsuga menziesii*	25.0	Moderate	
123	Douglas-Fir	*Pseudotsuga menziesii*	15.5	Moderate	
124	Douglas-Fir	*Pseudotsuga menziesii*	30.0	HAZARD	Included Bark
125	Cherry	*Prunus spp.*	15.0	Low	DBH @ 1'

TREE SCHEDULE, SPECIES, CONDITION, AND DBH AS PROVIDED BY ARBORIST REPORT, URBAN FOREST PROFESSIONALS/JOHN O'SHEA, ISA CERTIFIED ARBORIST #WE1877, 12/29/09.

File: J:\p\p\2009\300174-HACC MP\CAD\PLOT\Land-Use\Concept Plans\9174_C4.1_Tree_value_survey.dwg TAB:C4.3
Plotted: 6/28/10 at 10:45am By: dhutchinson

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

JAL
DH
DH, SEE
JAL

EXISTING TREE TABLE

09271.00
JUNE 21, 2010

C4.3
CONCEPTUAL DEVELOPMENT PLAN

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TAG	COMMON NAME	BOTANICAL NAME	DBH	VALUE	COMMENTS
146	Cottonwood	*Populus deltoides*	30.0	LOW	
147	Birch	*Betula sp.*	22.0	LOW	
148	Black Locust	*Robinia psuedoacacia*	22.5	MODERATE	
149	Black Locust	*Robinia psuedoacacia*	16.0	LOW	
150	Black Locust	*Robinia psuedoacacia*	28.0	LOW	
151	Engelmann Spruce	*Picea engelmannii*	12.0	HAZARD	Broken
152	Alder	*Alnus sp.*	25.0	LOW	
153	Black Locust	*Robinia psuedoacacia*	25.0	HAZARD	Decay
154	English Walnut	*Juglans regia*	15.0	HIGH	
155	Cypress	*Cupressocyparis sp.*	15.0	HAZARD	Multi-stem
156	Cypress	*Cupressocyparis sp.*	18.0	HAZARD	
157	Grand Fir	*Abies grandis*	40.5	MODERATE	
158	Magnolia	*Magnolia sp.*	9.0	MODERATE	
159	Magnolia	*Magnolia sp.*	8.0	MODERATE	
160	Weeping Cherry	*Prunus sp.*	14.5	LOW	Fungus
161	Cypress	*Cupressocyparis sp.*	9.5	HAZARD	
162	Deodar Cedar	*Cedrus deodara*	18.0	LOW	
163	Sumac	*Rhus sp.*	14.0	HAZARD	
166	Dogwood	*Cornus sp.*	31.0	HAZARD	Trunk Rot
168	Sitka Spruce	*Picea sitchensis*	16.5	MODERATE	
169	Sitka Spruce	*Picea sitchensis*	20.0	HAZARD	Double Top
172	Sitka Spruce	*Picea sitchensis*	17.0	MODERATE	
173	Sitka Spruce	*Picea sitchensis*	27.5	MODERATE	
174	Black Locust	*Robinia psuedoacacia*	7.0	MODERATE	
175	Birch	*Betula sp.*	15.0	LOW	
176	Mazard Cherry	*Prunus sp.*	12.0	LOW	
177	Black Locust	*Robinia psuedoacacia*	17.0	MODERATE	
178	Black Locust	*Robinia psuedoacacia*	10.0	HAZARD	
179	Hemlock	*Tsuga sp.*	21.0	HAZARD	Girdling
181	Cherry	*Prunus sp.*	8.5	LOW	
182	Cherry	*Prunus sp.*	9.0	LOW	
184	Mazard Cherry	*Prunus sp.*	22.0	LOW	
151A	Hawthorne	*Crateagus sp.*	25.0	MODERATE	Not Tagged

TREE SCHEDULE, SPECIES, CONDITION, AND DBH AS PROVIDED BY ARBORIST REPORT, URBAN FOREST PROFESSIONALS/JOHN O'SHEA, ISA CERTIFIED ARBORIST #WE1877, 3/17/10.

ORIGINAL SHEET SIZE 22" x 34"

File: I:\e\p\2009\309174--HACC MP\CAD\PLOT\Land--Use\Concept Plans\9174_C4.1_Tree_value_survey.dwg TAB:C4.4
Plotted: 6/28/10 at 11:02am By: dhutchinson

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

PROJECT DIRECTOR: JAL
PROJECT MANAGER: JAL
PROJECT TEAM: DH
PROJECT TEAM MEMBER: DH, SEE
DRAWN: JAL

TITLE: EXISTING TREE TABLE

PROJECT NO.: 09271.00
DATE: JUNE 21, 2010

SHEET NUMBER: C4.4
CONCEPTUAL DEVELOPMENT PLAN

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LEGEND
CONCEPT DEVELOPMENT PLAN BOUNDARY
CONIFEROUS TREE - EXISTING TO REMAIN
DECIDUOUS TREE - EXISTING TO REMAIN
COVERED PARKING, CARRIAGE UNIT ABOVE
PROPOSED PROGRAM
R-3.5 LOT 700
- RESIDENTIAL UNITS: 250-283 INCLUDES SINGLE FAMILY ATTACHED / DETACHED, ROWHOUSES AND MULTI-FAMILY
- COMMUNITY CENTER: INCLUDES ACCESSORY OFFICE (6,000 SF)
- MULTI-FAMILY: INCLUDES ACCESSORY OFFICE (200 SF)
MUC-1 LOTS 400-500
- EARLY CHILDHOOD EDUCATION AND FAMILY WELLNESS CENTER: 14,000 SF
- RETAIL: 2000 SF (NEIGHBORHOOD SERVING)
NOTES:
1. SEE SEPARATE EXHIBIT FOR PROPOSED DEVELOPMENT PHASES AND FUTURE POTENTIAL LAND SUBDIVISIONS. THESE WILL BE FINALIZED IN DETAILED DEVELOPMENT PLAN.
2. THE HOUSING MIX WILL BE FINALIZED IN THE DETAILED DEVELOPMENT PLAN. SEE APPLICATION NARRATIVE FOR DESCRIPTION, TABLE 2.
3. BUILDING FOOTPRINTS ARE DIAGRAMMATIC AS SHOWN AND INDICATE THE OVERALL CONCEPT. ACTUAL FOOTPRINTS FOR EACH BUILDING GROUPING WILL BE FINALIZED IN DETAILED DEVELOPMENT PLAN AND MAY VARY FROM THE CONCEPT PLAN.
R-3.5
MUC-1
KEY PLAN
BLOCK DIAGRAM
SCALE: 1" = 150'-0"
COMMUNITY GARDEN
NATURAL HABITAT AREA
POCKET PARK
PROPOSED ROCK STREET
PROPOSED ROSE STREET
COMMUNITY PARK
PLAZA
PROPOSED COLUMBINE STREET
COMMUNITY CENTER & CLACKAMAS HEIGHTS PROPERTY MANAGEMENT
PLAY AREA
MULTI-FAMILY
MULTI-FAMILY COMMUNITY POLICE OFFICE
EARLY CHILDHOOD EDUCATION AND FAMILY WELLNESS CENTER
NEIGHBORHOOD RETAIL
GAIN STREET
HARLEY STREET
APPERSON BLVD.
HWY. 213
FRONT AVENUE
HOLCOMB BLVD.
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4A
BLOCK 4B
BLOCK 5
BLOCK 6
BLOCK 7
N
50' 100' 200'
NOT FOR CONSTRUCTION
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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN
LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045
PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY
TS
EC
MS
LF, LC, SA, DJ
PROPOSED SITE PLAN
09271.00
JUNE 21, 2010
A1.01
CONCEPT DEVELOPMENT PLAN
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OPEN SPACE CALCULATIONS	
COMMUNITY VEGETABLE GARDEN:	0.58 AC
COMMUNITY PARK:	1.33 AC
NATURAL HABITAT AREA:	1.04 AC
TOTAL PROPOSED	2.93 AC

LEGEND

- POCKET PARK
- COMMUNITY PARK
- NATURAL HABITAT AREA
- COMMUNITY GARDEN
- PLAZA
- TRAIL - ON SITE
- POTENTIAL TRAIL - OFF SITE
- POTENTIAL HISTORICAL MARKER
- EXISTING TREE - SAVE
- EXISTING TREE - SAVE IF POSSIBLE
- EXISTING TREE - REMOVE
- NEW TREE

NOTES:

1. NO NATURAL, HISTORIC OR CULTURAL RESOURCE AREAS ARE MAPPED WITHIN 250' OF THE SITE.
2. ALL POCKET PARKS, COMMUNITY PARK, NATURAL HABITAT AREA, COMMUNITY GARDEN, AND PLAZAS ARE PLANNED TO BE MAINTAINED BY A PRIVATE PROPERTY OWNER ASSOCIATION.
3. POTENTIAL HISTORICAL MARKERS ARE SUGGESTED AS AN OPPORTUNITY TO CELEBRATE THE CULTURAL AND NATURAL HISTORY OF THE BARLOW TRAIL.
4. POCKET PARKS WILL BE DEDICATED OPEN SPACE TRACTS WITH PUBLIC ACCESS EASEMENTS GRANTED. LAND DIVISION WILL OCCUR DURING DETAILED DEVELOPMENT PLAN AND WILL NOT VARY MORE THAN 20% IN AREA.

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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 9704

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

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PROPOSED OPEN SPACE PLAN

09271.00
JUNE 21, 2010

A1.02
CONCEPT DEVELOPMENT PLAN

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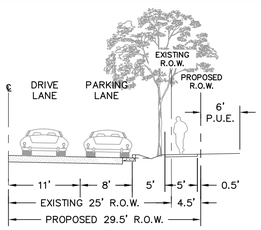
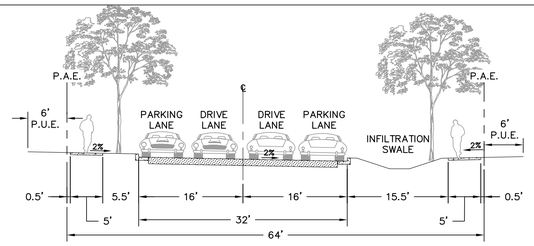
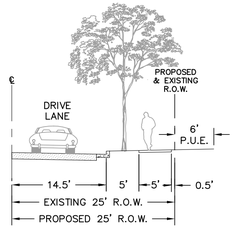


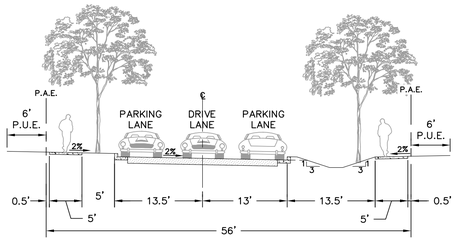
4 APPERSON BOULEVARD SECTION
29' RIGHT-OF-WAY FROM CENTERLINE
SCALE: 1" = 10'



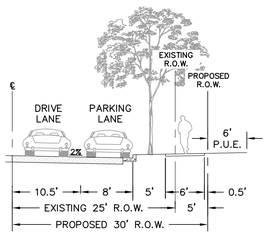
1 32' WIDE SHED STREET SECTION
64' PUBLIC ACCESS EASEMENT
SCALE: 1" = 10'



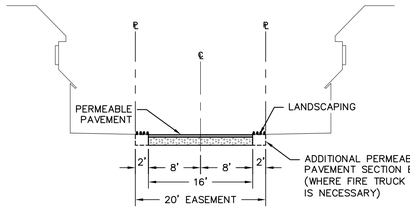
5 GAIN STREET SECTION
25' RIGHT-OF-WAY FROM CENTERLINE
SCALE: 1" = 10'



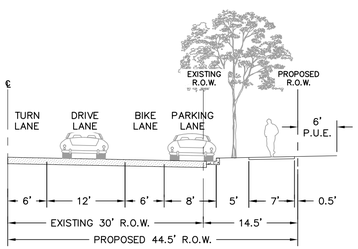
2 26' WIDE SHED STREET SECTION
56' PUBLIC ACCESS EASEMENT
SCALE: 1" = 10'



6 FRONT AVENUE SECTION
30' RIGHT-OF-WAY FROM CENTERLINE
SCALE: 1" = 10'



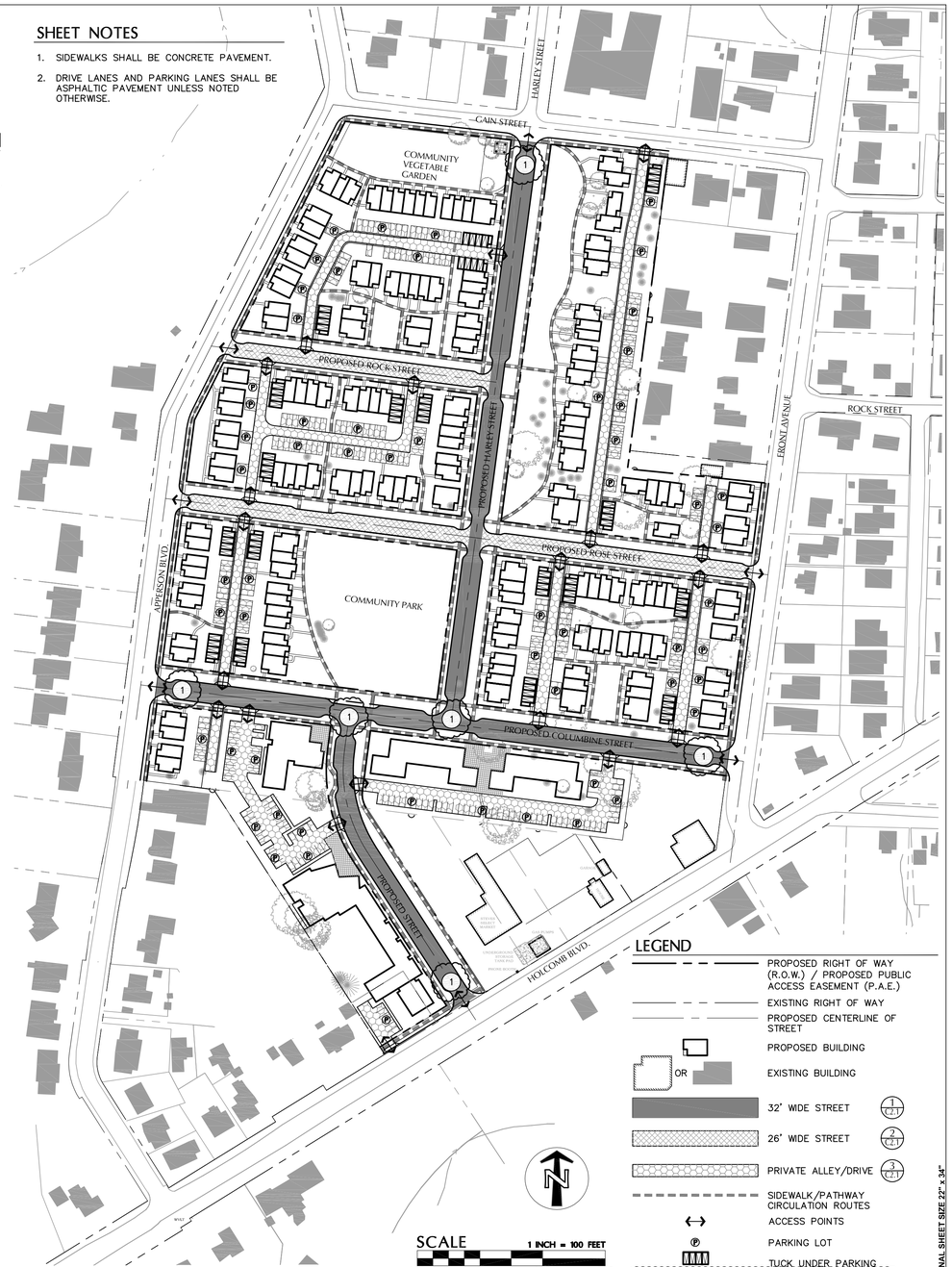
3 PRIVATE ALLEY
20' UTILITY EASEMENT
SCALE: 1" = 10'



7 TYP. HOLCOMB BOULEVARD SECTION
44.5' RIGHT-OF-WAY FROM CENTERLINE
SCALE: 1" = 10'

SHEET NOTES

1. SIDEWALKS SHALL BE CONCRETE PAVEMENT.
2. DRIVE LANES AND PARKING LANES SHALL BE ASPHALTIC PAVEMENT UNLESS NOTED OTHERWISE.



ORIGINAL SHEET SIZE 22" x 34"

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Portland, Oregon 97204
Phone: (503) 227-3251
Fax: (503) 274-4681

PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

NO.	DATE	REVISION

PROJECT DIRECTOR: JAL
PROJECT MANAGER: JAL
PROJECT ENGINEER: DH
PROJECT TEAM MEMBERS: DH, SEE
DRAWN: JAL
ARCHITECT SEAL:

TITLE
PROPOSED SITE CIRCULATION PLAN

PROJECT NO. 09271.00
DATE JUNE 21, 2010
PROJECT NETWORK PATH:

SHEET NUMBER
C2.1
CONCEPTUAL DEVELOPMENT PLAN

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Fax: (503) 274-1851

PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
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JAL
DH
DH, SEE
JAL

PROPOSED STORM DRAINAGE CONCEPT PLAN

99271.00

JUNE 21, 2010

C3.1
CONCEPTUAL DEVELOPMENT PLAN

File: E:\c\p\2009\309174-HACC MP\CAD\PLOT\Land-Use\Concept Plans\9174_C3.1_Storm Plan.dwg TAB: C3.1
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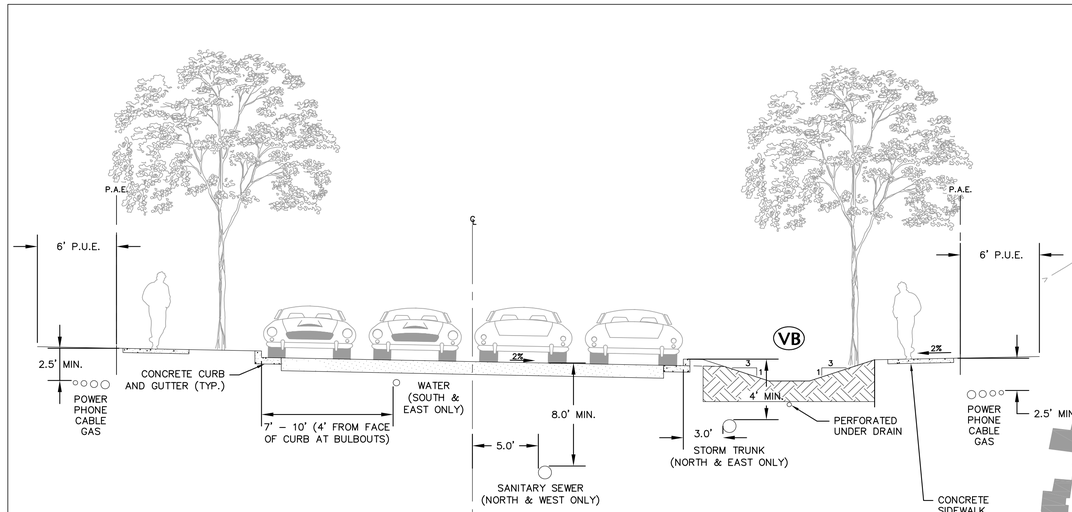
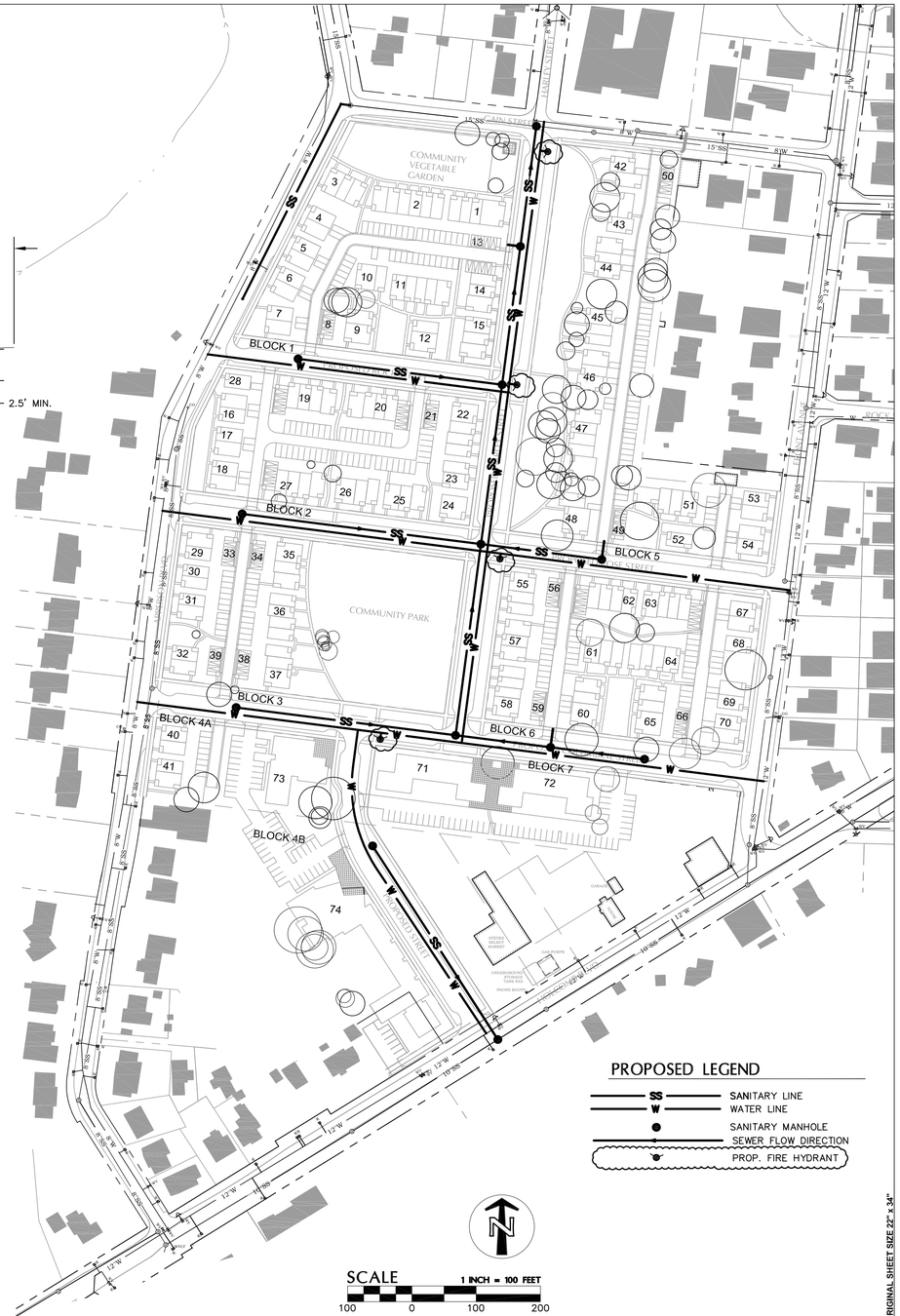


1 TYPICAL UTILITY PLACEMENT
SCALE: NONE



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PROJECT:
CLACKAMAS HEIGHTS MASTER PLAN

LOCATION:
13930 GAIN STREET, OREGON CITY, OR 97045

PREPARED FOR:
THE HOUSING AUTHORITY OF CLACKAMAS COUNTY

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PROJECT ENGINEER: DH
PROJECT TEAM MEMBERS: DH, SEE
CHECK: JAL
ARCHITECT SEAL:

TITLE
PROPOSED PUBLIC WATER & SEWER CONCEPT PLAN

PROJECT NO.: 09271.00
DATE: JUNE 21, 2010
PROJECT NETWORK PATH:

SHEET NUMBER
C3.2
CONCEPTUAL DEVELOPMENT PLAN

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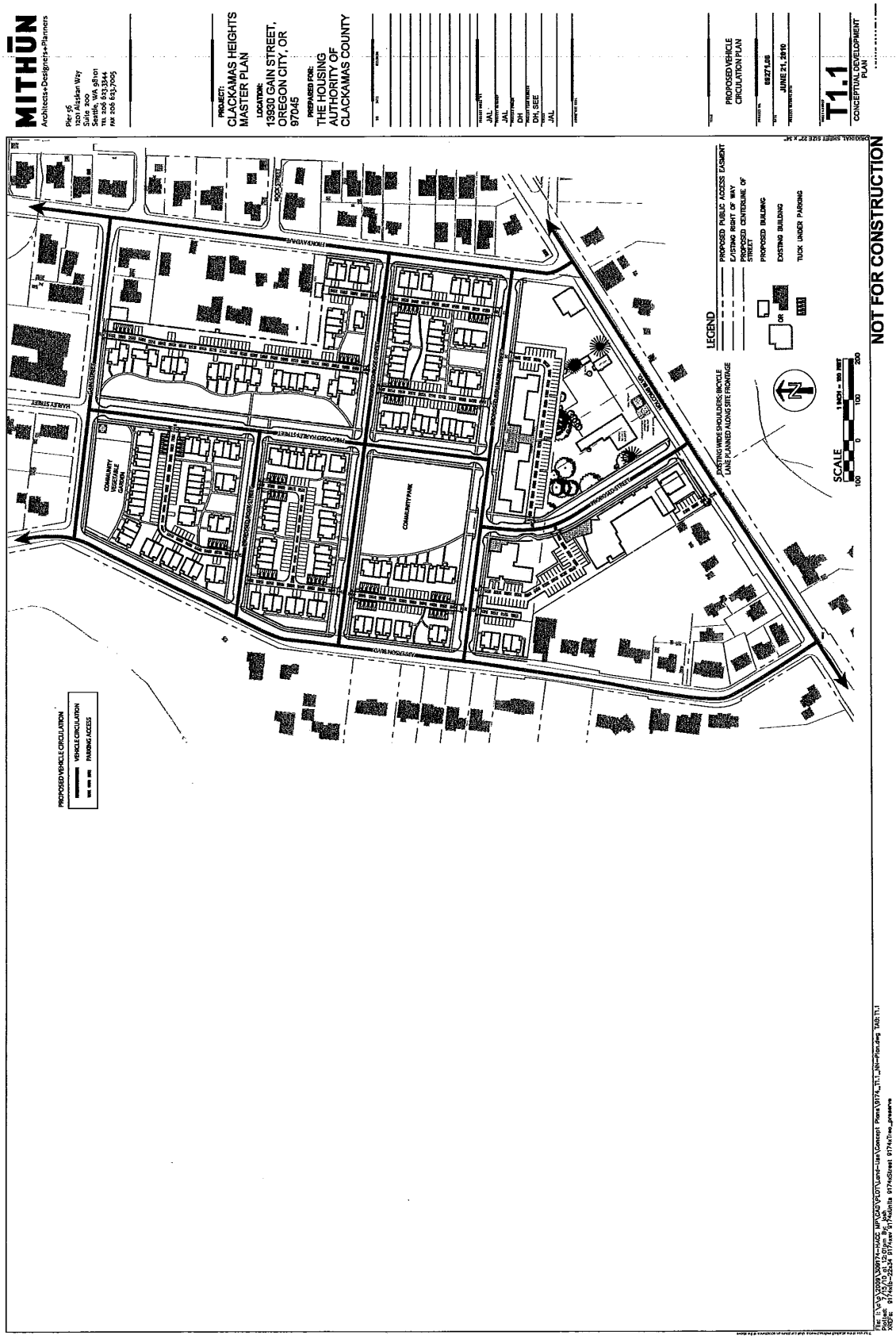
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OREGON CITY, OR
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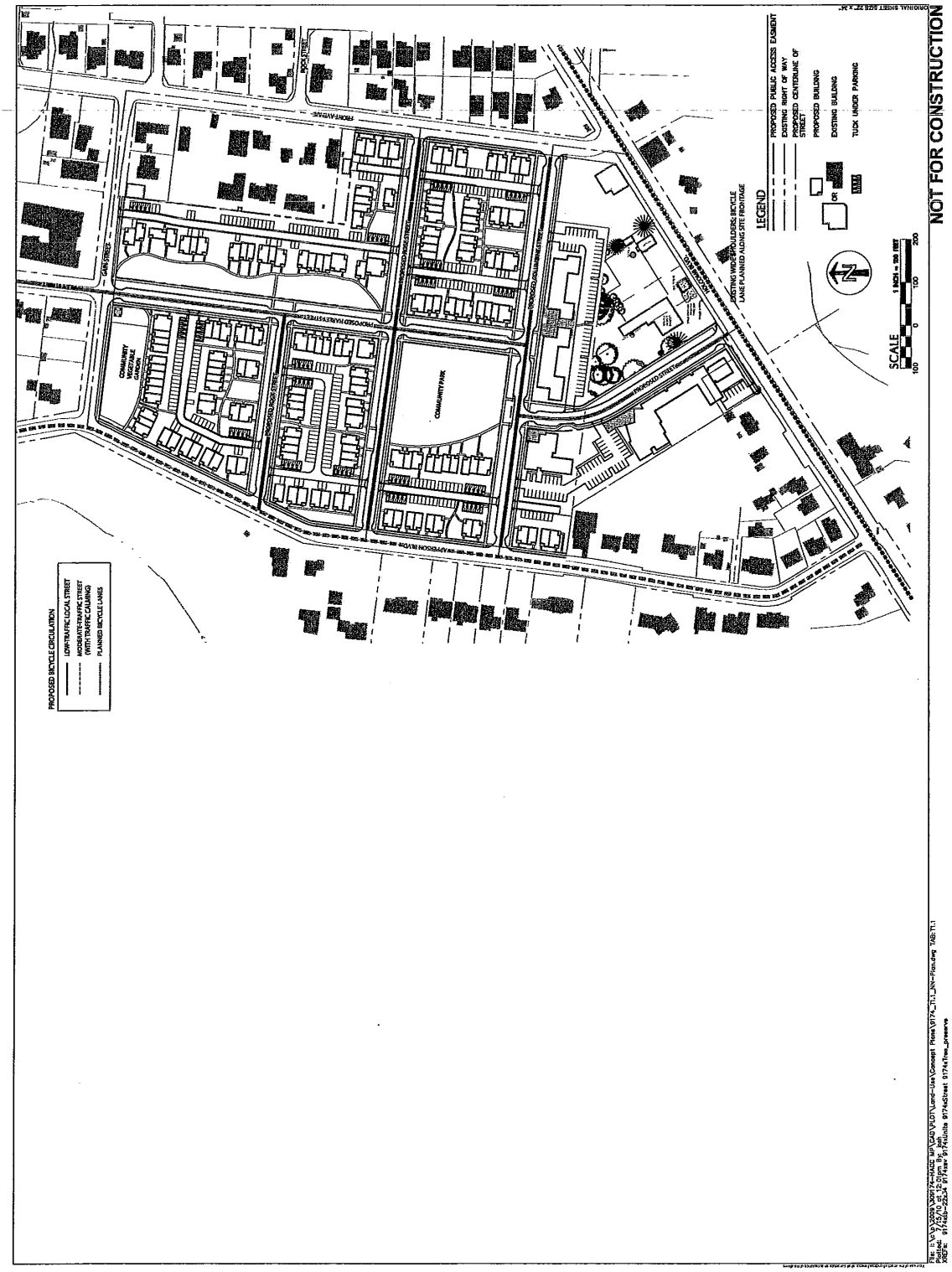
PROPOSED VEHICLE
CIRCULATION PLAN
JUNE 21, 2010
T1.1
CONCEPTUAL DEVELOPMENT
PLAN
NOT FOR CONSTRUCTION
LEGEND
PROPOSED PUBLIC ACCESS EASEMENT
EXISTING RIGHT OF WAY
PROPOSED CENTERLINE OF STREET
PROPOSED BUILDING
EXISTING BUILDING
TUCK UNDER PARKING
BIKE/PED UNDER SHOULDERS/BICYCLE LANE PLANNED ALONG SITE FRONTAGE
SCALE
1 INCH = 100 FEET
100 0 100 200
PROPOSED VEHICLE CIRCULATION
VEHICLE CIRCULATION
PARKING ACCESS
COMMUNITY PARK
COMMUNITY VEGETABLE GARDEN
PROPOSED HAILEY STREET
PROPOSED GAIN STREET
PROPOSED MAIN STREET
HAILEY STREET
GAIN STREET
JOHNSON BLVD
ROOSEVELT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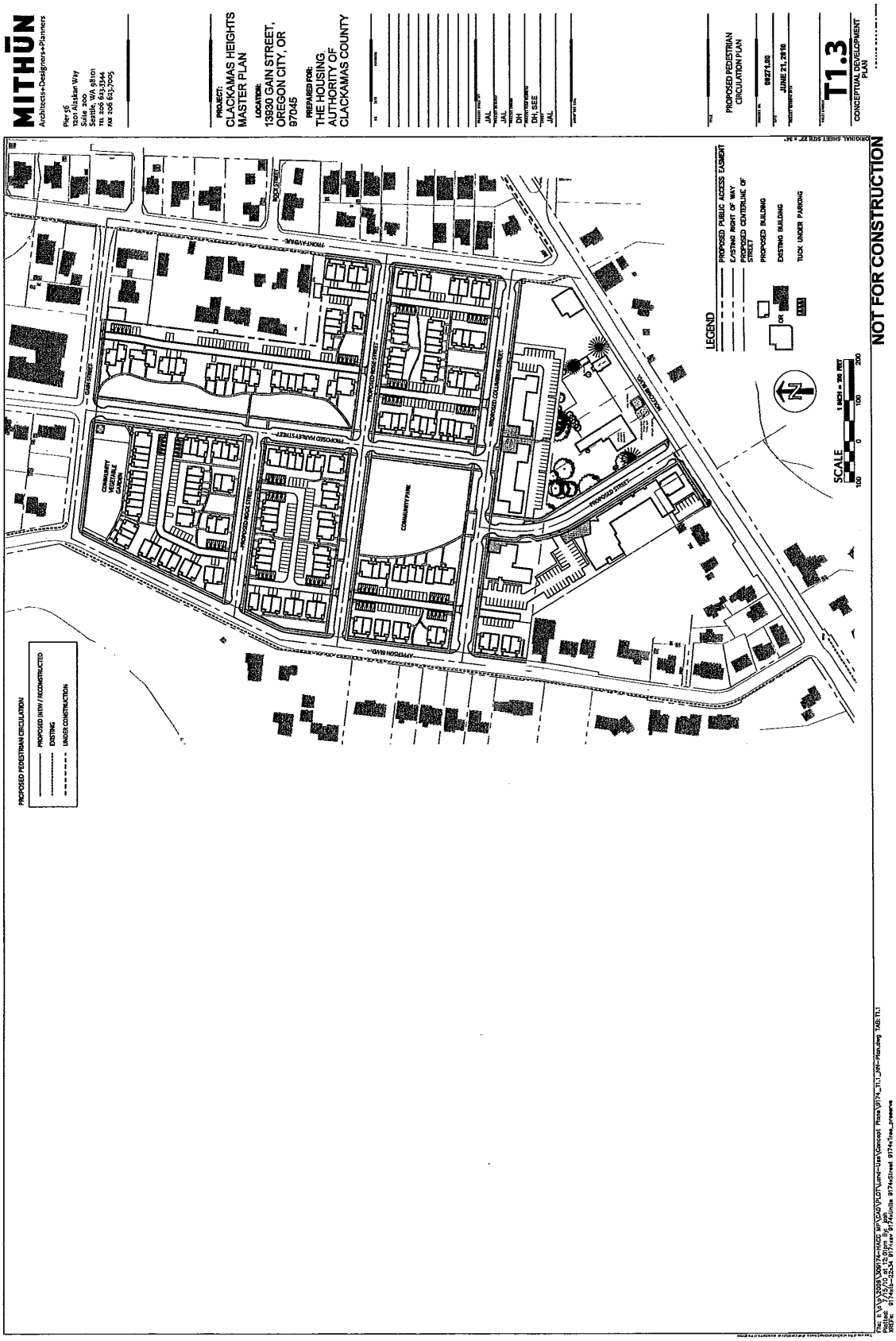
CLACKAMAS COUNTY
PROPOSED BICYCLE
CIRCULATION PLAN
T1.2
CONCEPTUAL DEVELOPMENT
PLAN
JUNE 21, 2010
LEGEND
PROPOSED PUBLIC ACCESS EASEMENT
EXISTING RIGHT OF WAY
PROPOSED CENTERLINE OF STREET
PROPOSED BUILDING
EXISTING BUILDING
TUCK UNDER PARKING
SCALE
PROPOSED BICYCLE CIRCULATION
LOW TRAFFIC LOCAL STREET
MODERATE TRAFFIC STREET (WITH TRAFFIC CALMING)
PLANNED BICYCLE LANES
GAIN STREET
FRONT AVENUE
88TH STREET
PROPOSED PUBLIC STREET
PROPOSED ALLEY
COMMUNITY PARK
COMMUNITY VEGETABLE GARDEN
EXISTING WIDE SHOULDERS: BICYCLE LANE PLANNED ALONG SITE FRONTAGE
NOT FOR CONSTRUCTION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AUTHORITY OF
CLACKAMAS COUNTY
T1.3
CONCEPTUAL DEVELOPMENT
PLAN
PROPOSED PEDESTRIAN
CIRCULATION PLAN
JUNE 21, 2010
NOT FOR CONSTRUCTION
LEGEND
PROPOSED PUBLIC ACCESS EASMENT
EXISTING RIGHT OF WAY
PROPOSED CENTERLINE OF STREET
PROPOSED BUILDING
EXISTING BUILDING
TUCK UNDER PARKING
SCALE
PROPOSED PEDESTRIAN CIRCULATION
PROPOSED (NEW / RECONSTRUCTED)
EXISTING
UNDER CONSTRUCTION
GAIN STREET
HIGHWAY 213
PROPOSED MAIN STREET
PROPOSED ROCK STREET
PROPOSED COMMON STREET
COMMUNITY PARK
COMMUNITY VEGETABLE GARDEN

Residential and Non-residential Bicycle Parking Requirements

Site Location	# Residential Spaces Required	# Non-Residential Spaces Required	Total Spaces Required	Additional Spaces Recommended (Exceeds Required)	Total with Recommended Spaces
Block 1	27	-	27		27
Block 2	21	-	21		21
Block 3	14	-	14		14
Block 4A	4	3	7	7	14
Block 4B	0	3	3	7	10
Block 5	32	-	32		32
Block 6	26	-	26		26
Block 7	43	1	44	1	45
Community Garden	-	0	0	2	2
Community Park	-	0	0	8	8
Total	167	7	174	25	199

Oregon City Municipal Code, 17.52.160 / Table A Required Bicycle Parking Spaces

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PROPOSED BICYCLE PARKING LOCATIONS

08271.00

JUNE 21, 2010

T1.4
CONCEPTUAL DEVELOPMENT PLAN

ORIGINAL SHEET SIZE 22" x 34"

File: I:\c\p\2009\309174-HACC MP\CAD\PLOT\Land-Use\Concept Plans\9174_T1.1_NN-Plan.dwg TAB: T1.1
Plotted: 7/15/10 at 12:01pm By: ian
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Appendix: HACC Background Information

HACC is a public housing agency whose mission is to provide affordable, safe, decent and sanitary housing opportunities to low-income people in Clackamas County.

As a division of the Clackamas County Department of Health, Housing and Human Services, HACC is governed by a Board of Commissioners made up of the Clackamas County Board of Commissioners plus one Housing Authority Resident Commissioner. With an annual operating budget of $18.7 million, HACC maintains 565 public housing units, 1,467 Section 8 Vouchers, 115 additional vouchers, 16 transitional housing units, and 296 units of affordable housing.

HACC's two primary lines of business are: 1) Public Housing that is housing owned, rented and maintained by HACC; and 2) the Section 8 Housing Choice Voucher Program that allows residents to find their own housing in the rental market and use vouchers for rental assistance. Both Programs are federally funded through the United States Department of Housing and Urban Development (HUD). HACC also owns a 289 unit "affordable housing" apartment complex operated under third-party management; and a "special needs" portfolio serving 62 residents that is master leased to local mental health service providers.

In recognition of HACC's well-established and successful track record, HUD rated HACC as a high performer in 2009 among public housing authorities nationally. In this same year, HACC received outstanding scores from HUD's Real Estate Assessment Center (REAC) and the Section 8 Management Assessment Program (SEMAP).

To qualify for public or affordable housing, the household income of residents must not exceed HUD set standards, which is 80% of area median income (AMI) based on the specified number of family members. Public housing primarily serves low-income to no-income households because rent is based on income. Tenants pay 30% of their adjusted gross income for rent and utilities, and public housing tenants typically fall in the range of 30-40% AMI or lower. Affordable housing unit rents are set lower than market rate, by HUD standards, but are not directly linked to the household income.

The demand for low-rent public housing is high. The current waiting time for available units ranges from 18 months to 4 years. Applications are filed in chronological order by date and time of receipt and unit size needs. Currently there are 1,410 and 5,362 households on the public housing and Section 8 waiting lists, respectively. Moreover, the waiting lists have been closed and have not accepted new applicants since February 2, 2009. This need is also documented in Clackamas County's Three-Year Consolidated Plan (Final Report, April 30, 2009).

For Public Housing, HACC currently owns, operates and maintains 565 units serving a mix of low income families, elderly persons and persons with disabilities.

Project Name	No. of Units	Acres or Land Use	Target Population
Clackamas Heights	99	Approx. 19acres	Families
Oregon City View Manor	100	Approx. 21acres	Families and Disabled
Hillside Park	100	Approx. 21acres	Families and Disabled
Hillside Manor	100	High-Rise	Seniors and Disabled
Scattered Sites	166	Avg. 5,000 sq. ft. lots	Families

To supplement Housing Programs, programs are available for residents including a Head Start center, a Career and Learning Center, sports and recreation activities, entrepreneurial experience, cross-age mentorship, crime prevention, summer day camp, and service coordination for families including seniors, disabled and non-English speaking people. HACC also provides an array of federally funded ancillary programs and services to assist public housing residents in achieving self-sufficiency. HACC has a federally funded family self sufficiency program for HCV recipients. HACC's resident services are nationally recognized.

Additional information about HACC can be found in their 2009 Annual Report, attached.

Oregon
Theodore R. Kulongoski, Governor

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209 - 4037
Telephone (503) 731-8200
FAX (503) 731-8259

File code: PLA9-2B -160
ODOT Case No: 3883

March 18, 2010

Laura Butler, Associate Planner
Planning Department
City of Oregon City
PO Box 3040
Oregon City, OR 97045-0304

Re: **PA 10-03 Clackamas Heights Pre-Application**

Dear Ms. Butler,

ODOT has reviewed the March 8, 2010 traffic impact analysis (TIA) scope. Comments prepared by Avi Tayar are attached. He and I attended the February 23, 2010 pre-application conference.

Avi has noted that additional intersections that are ODOT facilities will need to be analyzed. This will support the necessary transportation capacity and safety findings under Section 17.65(2) which requires: *"The transportation system has sufficient capacity based on the City's level of service standards and is capable of safely supporting the development proposed in addition to the existing and planned uses in the area, or will be made adequate by the time each phase of the development is completed."*

We have conducted our review of the TIA scope based on the assumption that no zone change is required. The applicant will want to provide evidence that the number of units is consistent with the site size because an outstanding question is the density calculations. I understand a density-transfer may provide part of the justification.

Thank you for providing ODOT the opportunity to comment. The site plan design is impressive because it has numerous features to help reduce the need to drive and to support alternative transportation modes. I can be reached at (503) 731-8206 should you wish to reach me and Avi Tayar can be reached at (503) 731-8221.

Sincerely,

Gail Curtis,
Senior Planner, AICP

C: Thomas Brennan, Nelson Nygaard
Avi Tayar, Traffic Engineer, Region 1, ODOT

Attach: Avi Tayar, ODOT memorandum

Oregon
Theodore R. Kulongoski, Governor

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209 - 4037
Telephone (503) 731-8200
FAX (503) 731-8259

TO: Gail Curtis – Senior Planner
Region 1 Planning

FROM: Avi Tayar, P.E.
Development Review Team Leader
Region 1 Traffic

DATE: March 18, 2010

RE: Proposed Scope of Work for Clackamas Heights TIS
OR 213 (Cascade Highway North)
Oregon City, OREON

I have reviewed the proposed scope of work (SOW) for the Clackamas Heights Traffic Impact Study (TIS). The TIS is proposed to address traffic impact as part of a master plan to be submitted to Oregon City. The Master Plan for Clackamas Heights is proposed by the Housing Authority of Clackamas County. The SOW letter is dated March 8, 2010 and was prepared by Nelson/Nygaard Consulting Associates. I have the following concerns:

Study Intersection
The list of study intersections should include the I-205 to Redland Road Project intersection that the City is developing for the OR 213/Washington Street intersection.

Proposed Analysis Scenario
The proposed analysis scenarios are limited to existing conditions and full build -out year without and with the development (2014). The proposed development includes land uses that are different from the allowed uses in the existing zoning for the area. The SOW does not address TPR requirements for a zone change to the area. Additional clarification is needed in regard to addressing TPR requirements. ODOT concurrence with the SOW is pending the clarification.

Proposed Analysis Scope/Method
Raw traffic volumes will not be accepted for use in traffic analysis. All traffic volumes must be seasonally adjusted to represent 30th Highest Hour Volumes (30HV) for Current year and Build Out "background traffic" conditions. For guidance, the analyst is referred to the ODOT Developing Design Hour Volumes document.

Capacity analysis of signalized intersections, unsignalized intersections, and roadway segments shall follow the established methodologies of the current Highway Capacity

Manual (HCM2000). For signalized intersections, the overall intersection V/C shall be reported. For unsignalized intersections, the highest approach V/C shall be reported, along with an indication of its corresponding movement.

Attached **Table 3.3.7** lists the ODOT default values for use in signalized intersection analysis. If multiple intersections are analyzed, the traffic volumes shall be balanced between intersection nodes. All intersection capacity analyses shall include heavy vehicles percentages by approach, as determined from manual counts.

Planning level mobility results (V/C) from the TIS will be compared against Highway Mobility Standards (Policy 1F) and the Maximum V/C (0.99) Ratio provided in Tables 7 of the 1999 Oregon Highway Plan (OHP).

Application of Computer software shall closely follow ODOT-approved analysis methodologies. HCS2000 and Synchro/SimTraffic are examples of accepted analysis software.

Crash History
In addition to the listed intersection, the crash history evaluation should include all OR 213 intersections as well.

Additional Analyses – Queue Length
Intersection operation analysis shall include the effects of queuing and blocking. Average queue lengths and 95th Percentile queue lengths shall be reported for all study area intersections including OR 213 intersections. The 95th Percentile queuing shall be used for design purposes, and will be reported to the next nearest 25 foot increment.

Proposed Trip Generation Methodology
The proposed reduction from the daily ITE Trip Generation rates listed in Figure 2 of the letter is acceptable except for the 24% income-restricted rental unit reduction rate. The proposed additional reduction of 24% is not sufficiently supported. ODOT proposes that a volume count of the existing 100 units be conducted to establish an additional reduction rate as high as listed above. Traditionally, ODOT has accepted a total reduction rate within the 15% value.

If there are any questions regarding the contents of this memorandum, please contact me at (503) 731-8221.

Revised Development Review Guidelines Table 3.3.7 Default Signal Parameters

Table 3.3.7: ODOT Default Parameters for Use With Signalized Intersection Analysis Methodologies	
Total Lost Time	4 seconds per phase minimum for typical intersections, more for large or complex intersections.
Peak Hour Factor	For future year analysis: • 0.85 for local and collector street approaches • 0.90 for minor arterial approaches, • 0.95 for major arterial approaches, unless better information is available, such as for a school or industrial use.
Ideal Saturation Flow Rate	Field measurement should be consistent with methodology laid out in the HCM. Saturation flow rate worksheets must be included in the documentation. Where field measurements are not done, • Outside of MPO urban areas, 1800 passenger cars per hour of green per lane (pcphgl) shall be used • Inside MPO urban growth boundaries, 1900 passenger cars per hour of green per lane (pcphgl) may be used, unless one or more of the following conditions are present, in which case 1800 pcphgl shall be used • Parking • Greater than 5% trucks • Other than ninety degree intersection skew angle • One or more approach(es), with a combined volume in excess of 5 vph, are present downstream of the intersection within the functional area, or upstream within the length of the standing queue • Poor signal spacing or observed queue spillbacks between signals during the peak hour, or • Less than 12 foot travel lanes

Clackamas Heights **Block 1**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Development Concept

Prepared by Nelson\Nygaard Consulting Associates

Development Program			City Parking Requirements			Estimated Demand Reduction Due to Captive Market			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F = A * E
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Total Estimated Parking Demand (without sharing)
Residential Program	**55**	**units**							**68**
Single family									
Single family detached	8	units	1.00	spaces per unit; single-family dwelling	8		1.00		8
Rowhouse	17	units	1.00	spaces per unit; single-family dwelling	17		1.00		17
Multifamily									
Studio		units	1.00	spaces per unit; multi-family dwelling studio	0		1.00		0
1 BR	14	units	1.25	spaces per unit; multi-family dwelling 1br	18		1.25		18
2 BR	15	units	1.50	spaces per unit; multi-family dwelling 2br	23		1.50		23
3+ BR	1	units	1.75	spaces per unit; multi-family dwelling 3br	2		1.75		2
						0%		space per unit	
				Subtotal Estimated Parking Demand	67				68
Total Parking Required (per current City of Oregon City regulations)									**68**

Clackamas Heights **Block 2**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Development Concept

Prepared by Nelson\Nygaard Consulting Associates

Development Program			City Parking Requirements			Estimated Demand Reduction Due to Captive Market			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F = A * E
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Total Estimated Parking Demand (without sharing)
Residential Program	**47**	**units**							**58**
Single family									
Single family detached	7	units	1.00	spaces per unit; single-family dwelling	7		1.00		7
Rowhouse	16	units	1.00	spaces per unit; single-family dwelling	16		1.00		16
Multifamily									
Studio		units	1.00	spaces per unit; multi-family dwelling studio	0		1.00		0
1 BR	8	units	1.25	spaces per unit; multi-family dwelling 1br	10		1.25		10
2 BR	15	units	1.50	spaces per unit; multi-family dwelling 2br	23		1.50		23
3+ BR	1	units	1.75	spaces per unit; multi-family dwelling 3br	2		1.75		2
						0%		space per unit	
				Subtotal Estimated Parking Demand	58				58
Total Parking Required (per current City of Oregon City regulations)									**58**

Clackamas Heights **Block 3**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Development Concept

Prepared by Nelson\Nygaard Consulting Associates

Development Program			City Parking Requirements			Estimated Demand Reduction Due to Captive Market			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F = A * E
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Total Estimated Parking Demand (without sharing)
Residential Program	**29**	**units**							**36**
Single family									
Single family detached	0	units	1.00	spaces per unit; single-family dwelling	0		1.00		0
Rowhouse	11	units	1.00	spaces per unit; single-family dwelling	11		1.00		11
Multifamily									
Studio		units	1.00	spaces per unit; multi-family dwelling studio	0		1.00		0
1 BR	8	units	1.25	spaces per unit; multi-family dwelling 1br	10		1.25		10
2 BR	10	units	1.50	spaces per unit; multi-family dwelling 2br	15		1.50		15
3+ BR	0	units	1.75	spaces per unit; multi-family dwelling 3br	0		1.75		0
						0%		space per unit	
				Subtotal Estimated Parking Demand	36				36
Total Parking Required (per current City of Oregon City regulations)									**36**

Clackamas Heights Block 4A

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Concept Plan

Prepared by Nelson\Nygaard Consulting Associates

Development Program	City Parking Requirements					Estimated Demand Reduction Due to Captive Market			Estimated Demand Reduction Due to Trip Demand Measures			Estimated Demand Reduction Due to Development Type			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F	G = E *(100% - F)		H	I = G *(100% - H)		J = A * I
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Reduction Due to Trip Reduction Measures (6)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Reduction Due to Development Type (7)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Total Estimated Parking Demand (without sharing)
Residential Program															8
Single family															
Single family detached	0	units	1.00	spaces per unit; single-family dwelling	0		1.00			1.00			1.00		0
Rowhouse	2	units	1.00	spaces per unit; single-family dwelling	2		1.00			1.00			1.00		2
Multifamily															
Studio	0	units	1.00	spaces per unit; multi-family dwelling studio	0	0%	1.00	space per unit	0%	1.00	space per unit	0%	1.00		0
1 BR	0	units	1.25	spaces per unit; multi-family dwelling 1br	0		1.25			1.25			1.25		0
2 BR	4	units	1.50	spaces per unit; multi-family dwelling 2br	6		1.50			1.50			1.50		6
3+ BR	0	units	1.75	spaces per unit; multi-family dwelling 3br	0		1.75			1.75			1.75		0
Non-Residential Program															20
Community Center (Block 4A)	4.0	KSF	4.10	spaces per 1000 so of gross leasable floor area; based on Office	16	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	15
HACC Property Management Office - Serving Clackamas Heights (Block 4A)	2.0	KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	5	10%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0%	2.43	spaces per KSF	5
Early Childhood Education and Family Wellness Center (ECEFWC) - Education / Daycare (Block 4B)		KSF	2.00	spaces per 1000 so of gross leasable floor area; based on Preschool Nursery/Kindergarten	0	10%	1.80	spaces per KSF	0%	1.80	spaces per KSF	0%	1.80	spaces per KSF	0
Retail (Block 4B)		KSF	4.10	spaces per 1000 so of gross leasable floor area; Retail Store/Shopping Center/Restaurants	0	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0
Community Policing Office (Block 7)		KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0
					13									Subtotal Estimated Parking Demand	28
														Reduction due to shared parking spaces in the commercial district (8%) (7)	2
Total Parking Required (per current City of Oregon City regulations, without reductions)					13										26

Clackamas Heights **Block 4B**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Concept Plan

Prepared by Nelson\Nygaard Consulting Associates

Development Program	City Parking Requirements					Estimated Demand Reduction Due to Captive Market			Estimated Demand Reduction Due to Trip Demand Measures			Estimated Demand Reduction Due to Development Type			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F	G = E *(100% - F)		H	I = G *(100% - H)		J = A * I
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Reduction Due to Trip Reduction Measures (6)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Reduction Due to Development Type (8)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Total Estimated Parking Demand (without sharing)
Residential Program															**0**
Single family															
Single family detached		units	1.00	spaces per unit; single-family dwelling	0		1.00			1.00			1.00		0
Rowhouse		units	1.00	spaces per unit; single-family dwelling	0		1.00			1.00			1.00		0
Multifamily															
Studio		units	1.00	spaces per unit; multi-family dwelling studio	0	0%	1.00	space per unit	0%	1.00	space per unit	0%	1.00		0
1 BR		units	1.25	spaces per unit; multi-family dwelling 1br	0		1.25			1.25			1.25		0
2 BR		units	1.50	spaces per unit; multi-family dwelling 2br	0		1.50			1.50			1.50		0
3+ BR		units	1.75	spaces per unit; multi-family dwelling 3br	0		1.75			1.75			1.75		0
Non-Residential Program															**32**
Community Center (Block 4A)		KSF	4.10	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0
HACC Property Management Office - Serving Clackamas Heights (Block 4A)		KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	2.43	spaces per KSF	10%	2.19	spaces per KSF	0%	2.19	spaces per KSF	0
ECE and Wellness Center - Education / Daycare (Block 4B)	14.0	KSF	2.00	spaces per 1000 so of gross leasable floor area; based on Preschool Nursery/Kindergarten	28	10%	1.80	spaces per KSF	0%	1.80	spaces per KSF	0%	1.80	spaces per KSF	25.0
Retail (Block 4B)	2.0	KSF	4.10	spaces per 1000 so of gross leasable floor area; Retail Store/Shopping Center/Restaurants	8	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	7.0
Community Policing Office (Block 7)		KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0
					36									Subtotal Estimated Parking Demand	32
														Reduction due to shared parking spaces in the commercial district (8%) (7)	3
Total Parking Required (per current City of Oregon City regulations) (5)					**36**										**29**

Clackamas Heights **Block 5**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Development Concept

Prepared by Nelson\Nygaard Consulting Associates

Development Program			City Parking Requirements			Estimated Demand Reduction Due to Captive Market			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F = A * E
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Total Estimated Parking Demand (without sharing)
Residential Program	**48**	**units**							**64**
Single family									
Single family detached	4	units	1.00	spaces per unit; single-family dwelling	4		1.00		4
Rowhouse	10	units	1.00	spaces per unit; single-family dwelling	10		1.00		10
Multifamily									
Studio	0	units	1.00	spaces per unit; multi-family dwelling studio	0		1.00		0
1 BR	11	units	1.25	spaces per unit; multi-family dwelling 1br	14		1.25		14
2 BR	21	units	1.50	spaces per unit; multi-family dwelling 2br	32		1.50		32
3+ BR	2	units	1.75	spaces per unit; multi-family dwelling 3br	4		1.75		4
						0%		space per unit	
				Subtotal Estimated Parking Demand	63				64
Total Parking Required (per current City of Oregon City regulations) (5)									**64**

Clackamas Heights **Block 6**

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Development Concept

Prepared by Nelson\Nygaard Consulting Associates

Development Program			City Parking Requirements			Estimated Demand Reduction Due to Captive Market			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F = A * E
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Total Estimated Parking Demand (without sharing)
Residential Program	**57**	**units**							**71**
Single family						0%		space per unit	
Single family detached	7	units	1.00	spaces per unit; single-family dwelling	7		1.00		7
Rowhouse	19	units	1.00	spaces per unit; single-family dwelling	19		1.00		19
Multifamily									
Studio	0	units	1.00	spaces per unit; multi-family dwelling studio	0		1.00		0
1 BR	10	units	1.25	spaces per unit; multi-family dwelling 1br	13		1.25		13
2 BR	18	units	1.50	spaces per unit; multi-family dwelling 2br	27		1.50		27
3+ BR	3	units	1.75	spaces per unit; multi-family dwelling 3br	5		1.75		5
				Subtotal Estimated Parking Demand	71				71
Total Parking Required (per current City of Oregon City regulations) (5)									**71**

Clackamas Heights Block 7

Parking Demand Estimate and Shared Parking Analysis

Scenario based on 6/9/2010 Concept Plan

Prepared by Nelson\Nygaard Consulting Associates

Development Program	City Parking Requirements					Estimated Demand Reduction Due to Captive Market			Estimated Demand Reduction Due to Trip Demand Measures			Estimated Demand Reduction Due to Development Type			Peak Demand by Use
	A		B		C = A * B	D	E = B * (100% - D)		F	G = E *(100% - F)		H	I = G *(100% - H)		J = A * I
Proposed Land Use (1,2)	Proposed Size by Use (1,2)		# Spaces Required (3)	Units; Land Use Category (3)	Total Parking Required by City	Reduction Due to Captive Market Effect (4)	Adjusted Parking Generation Rate (Captive Market Effects)		Reduction Due to Trip Reduction Measures (6)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Reduction Due to Development Type (8)	Adjusted Parking Generation Rate (Trip Reduction Measures)		Total Estimated Parking Demand (without sharing)
Residential Program															57
Single family															
Single family detached	0	units	1.00	spaces per unit; single-family dwelling	0		1.00			1.00			1.00		0
Rowhouse	0	units	1.00	spaces per unit; single-family dwelling	0		1.00			1.00			1.00		0
Multifamily															
Studio	0	units	1.00	spaces per unit; multi-family dwelling studio	0	0%	1.00	space per unit	0%	1.00	space per unit	0%	1.00		0
1 BR	32	units	1.25	spaces per unit; multi-family dwelling 1br	40		1.25			1.25			1.25		40
2 BR	11	units	1.50	spaces per unit; multi-family dwelling 2br	17		1.50			1.50			1.50		17
3+ BR	0	units	1.75	spaces per unit; multi-family dwelling 3br	0		1.75			1.75			1.75		0
Non-Residential Program															1
Community Center (Block 4A)		KSF	4.10	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0
HACC Property Management Office - Serving Clackamas Heights (Block 4A)		KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	0	10%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0
ECE and Wellness Center - Education / Daycare (Block 4B)		KSF	2.00	spaces per 1000 so of gross leasable floor area; based on Preschool Nursery/Kindergarten	0	10%	1.80	spaces per KSF	0%	1.80	spaces per KSF	0%	1.80	spaces per KSF	0
Retail (Block 4B)		KSF	4.10	spaces per 1000 so of gross leasable floor area; Retail Store/Shopping Center/Restaurants	0	10%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0%	3.69	spaces per KSF	0
Community Policing Office (Block 7)	0.2	KSF	2.70	spaces per 1000 so of gross leasable floor area; based on Office	1	10%	2.43	spaces per KSF	0%	2.43	spaces per KSF	0%	2.43	spaces per KSF	1
					57									Subtotal Estimated Parking Demand	58
														Reduction due to shared parking spaces in the commercial district (8%) (7)	0
Total Parking Required (per current City of Oregon City regulations) (5)					57										58

Notes, Sources, and Assumptions

(1) Source: CHMP Site Plan, 6/9/2010

(2) Source: CHMP Concept Program 6/9/2010

(3) Source: Oregon City Municipal Code, Title 17 Zoning, Sec. 17.52.010 Off-Street Parking and Loading - Number of Spaces Required. Requirements for types of buildings and uses not specifically listed ... shall be determined by the community development director, based upon ...requirements of comparable uses listed.

(4) Reductions for captive market effects appropriate for this project were based on an up to 10% reduction allowed by Oregon City for commercial development in proximity to a multifamily housing development of 80 units or more applied to the parking generation rates. Source: Oregon City Municipal Code 17.52.010 (A): The community development director may reduce the required number of parking stalls up to ten percent when it is determined that a commercial business center or multi-family project is adjacent to or within one thousand feet of an existing or planned public transit. Also, if a commercial center is within one thousand feet of a multi-family project, with over eighty units and pedestrian access, the parking requirements may be reduced by ten percent."

(5) Estimated off-street parking requirements can be reduced due to on-street parking supply in the overall analysis. Source: Oregon City Municipal Code 17.52.010 (D): "Parking may be counted toward the minimum standards... when it is on the block face abutting the subject land use."

(6) Oregon City allows an up to 10% reduction in parking requirements if TDM strategies are employed. N\N assumed no reductions. A TDM reduction could be applied for non-residential uses given a TDM program. Source: Oregon City Municipal Code 17.52.010 (B): "The community development director may reduce the required number of parking stalls up to ten percent when a parking-traffic study prepared by a traffic engineer demonstrates: 1. Alternative modes of transportation, including transit, bicycles, and walking, and/or special characteristics of the customer, client, employee or resident population will reduce expected vehicle use and parking space demand for this development, as compared to standard Institute of Transportation Engineers vehicle trip generation rates and minimum city parking requirements. 2. A Transportation Demand Management (TDM) Program has been developed for approval by the city engineer. The plan will contain strategies for reducing vehicle use and parking demand generated by the development and will be measured annually. If, at the annual assessment, the city determines the plan is not successful, the plan may be revised. If the city determines that no good-faith effort has been made to implement the plan, the city may take enforcement actions."

(7) N\N calculated an estimated 8% reduction in parking demand due to mixed use developments. Oregon City allows an up to 50% reduction. Source: Oregon City Municipal Code 17.52.010 (C1,2): "1. Mixed uses. If more than one type of land use occupies a single structure or parcel of land, the total requirements for off-street automobile parking shall be the sum of the requirements for all uses, unless it can be shown that the peak parking demands are actually less... In that case, the total requirements shall be reduced accordingly, up to a maximum reduction of fifty percent, as determined by the community development director. 2. Shared parking. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlay (e.g., uses primarily of a daytime versus nighttime nature), that the shared parking facility is within one thousand feet of the potential uses, and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use."

(8) N\N initially estimated a 30% reduction for the two multi-family housing developments due to their expected higher share of senior and disabled tenants. However this reduction was not used since it is not allowed by Oregon City code nor was it required to meet the City's minimum standards.

Oregon
Theodore R. Kulongoski, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

March 30, 2010

Mr. Mark Sirois
Clackamas County Comm Dev Dept
2051 Kaen Rd Ste 244
Oregon City, OR 97045

RE: SHPO Case No. 10-0747
Clackamas Heights Re-Development Project
S Gain, A, B, C, D streets, Oregon City, Clackamas County

Dear Mr. Sirois:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that the property has been extensively altered and is not eligible for the National Register of Historic Places in accordance with 36 CFR Part 60.4.

Thank you for meeting with me today to discuss this project and ensure that we properly addressed the area of potential effect (APE). I was able to drive by the nearby properties that are listed in our historic sites database, and drive around the surrounding area of the project site to if further research and survey was needed to determine if there was potential for a historic district. Based on what I observed, I was able to determine that there is no potential for a historic district in the area surrounding the subject property, and therefore, no further action is required, and no historic properties will be affected by this project.

Our response here is to assist you with your responsibilities under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800). Please feel free to contact me if you have further questions, comments or need additional assistance.

Sincerely,

Julie Osborne

Julie Osborne
Historic Preservation Specialist
(503) 986-0661 or Julie.Osborne@state.or.us

OREGON SHPO CLEARANCE FORM

SECTION 1: PROPERTY INFORMATION	SHPO Case Number:

Use this form for projects subject to Oregon SHPO review under 36 CFR 800 (Section 106) or ORS 358.653
Fill all blanks completely and attach listed items on page 2. Use additional sheets if needed. Do not write in shaded areas.

Street Address: 13900 S. Gain Street (See attachment D for all addresses)

City and County: Oregon City, Clackamas County

Property or Project Name, if applicable: Clackamas Heights Redevelopment

Owner: ☐ Private X Local Gov ☐ State Gov ☐ Federal Gov ☐ Other

If there is not a street address, include the Township, Range, and Section, cross streets, or other address description

Are there one or more buildings or structures?	**X YES** ☐ NO – If no, skip to Section 2 and append photo(s)
Is the property listed in the National Register of Historic Places? If yes, the property IS HISTORIC	☐ YES – Individually ☐ YES – In a district **X NO** ☐ DON'T KNOW
Is the property over 50 years old? *Skip if property is listed in the National Register*	**X YES** ☐ NO ☐ DON'T KNOW Construction date: 1941 X Check box if date is estimated
Roof Type(s) and Material(s): Gable roofs with metal standing seam roofing.	Window Type(s) and Material(s): Vinyl sliders
Siding Type(s) and Material(s): Metal lap siding	
Has the property been physically altered or changed? *Skip if property is listed in the National Register*	☐ No Changes ☐ Few Changes **X Major / Many Changes**

SECTION 2: APPLICANT DETERMINATION OF ELIGIBILITY - *Check the appropriate box*

Eligibility is based on age (50 years or older) and integrity (retention of historic building features), the minimum qualifications for listing in the National Register. If choosing to contest the eligibility of a property the applicant must demonstrate that the property is not eligible for the National Register using the Criteria listed in National Register Bulletin 15, "How to Apply the National Register Criteria for Evaluation."

☐ The property **IS ELIGIBLE** for listing in the National Register because it is 50 years old and has no or few changes, was determined eligible in a previous study, or is already **HISTORIC** (Listed in the National Register of Historic Places)

X The property **IS NOT ELIGIBLE** for listing in the National Register because it is not yet 50 years old, or it is 50 years old but many / major changes have been made.
Be sure to describe these changes in Section 4 for buildings that are at least 50 years old.

SECTION 3: APPLICANT DETERMINATION OF EFFECT - *Check the appropriate box*

☒ The project has **NO EFFECT** on a historic property, either because there is no eligible historic property involved or the historic property will not be impacted physically or visually.

☐ The project will have only a minor impact on the historic property, therefore there is **NO ADVERSE EFFECT** to the historic property. Minor impacts include replacement of some, but not all, siding, doors, or windows, etc.

☐ The project will have a major impact on the historic property, therefore there is an **ADVERSE EFFECT** to the historic property. Major impacts include full or partial demolition, complete residing, full window replacement, additions, etc.

STATE HISTORIC PRESERVATION OFFICE COMMENTS – *Official use only*

Eligibility:
☒ Concur with the eligibility determination above.
☐ Do not concur with the eligibility determination above.

Effect:
☒ Concur with the effect determination above.
☐ Do not concur with the effect determination above.

OREGON SHPO CLEARANCE FORM

Signed: Julie Osborne Date: 3-30-2010

Comments: also see attached letter -

SECTION 4: ALTERATIONS

Only complete this section for buildings that are at least 50 years old or older. Describe any material replacement, including siding, windows, and doors; any additions, including garages; and any removal or addition of architectural details, such as brackets, columns, and trim. Attach additional pages as necessary.

Buildings at Clackamas Heights built before 1960 :

- (61) residential buildings (22 - single family and 39 - duplex units)
- (1) community building

Modifications and alterations made to structures:

- Metal lap siding was installed on all structures in 1995.
- Metal standing seam roofing was installed in 2000.
- Vinyl slider windows were installed in 2000.

SECTION 5: PROJECT DESCRIPTION

Describe what work will be done, including what materials will be used and how they will be installed. Specifically identify what historic materials will be retained, restored, replaced, or covered. Include drawings, photos, cut sheets (product descriptions), additional sheets, and other materials as necessary. For vacant lots, please describe the intended use.

Clackamas Heights was built in 1942 to provide housing for the local workforce. The property is approximately 20 acres with (100) Public Housing units and the administrative offices and operations facilities for the Housing Authority of Clackamas County (HACC). Over the years it has provided safe, stable housing for generations of low- and moderate-income households in Clackamas County. As the property has aged though, HACC has had to invest increasing amounts of limited resources for the maintenance and upkeep of the buildings and grounds.

The residential structures have post and block foundations that have increasingly become unstable causing structural and infrastructure challenges through out the site. The units are not insulated adequately, are heated with inefficient electric baseboard and wall heaters and do not meet current accessibility codes and requirements. In addition, the site is underutilized in its current configuration (see Attachment A). Therefore, HACC has decided to redevelop the property with the goal of building a new, healthier community that better meets the needs of current and future residents, while enhancing the natural environment, achieving a better use of land, promoting energy efficiency, maximizing ADA accessibility, and improving access to nearby jobs, businesses, schools, and other support services.

HACC has completed a master plan for the site (see Attachment B) and will be applying for federal grant funds in 2010 to provide the seed funding for the project. Once funding is secured, HACC anticipates the start of relocation of both residents and HACC staff in mid- to late 2011. The site will be demolished and vacated in early 2012 with the beginning of infrastructure construction scheduled for summer 2012. At build out, Clackamas Heights will contain approximately (300) units with a mix of Public Housing, affordable rental and homeownership. In addition, HACC will be housed in new offices located at the heart of a small commercial center that includes community space, a tool lending library, an expanded, locally owned grocery store and small retail space.

REQUIRED	☒ 3 – 4, color, 4 x 5 photographs of the subject property, digital or print. One photo is sufficient for vacant property (See Attachment C)
AS NEEDED *Contact SHPO staff with questions*	☒ Project area map, for projects including more than one tax lot
	☐ Additional drawings, reports, or other relevant materials

SECTION 6: AGENCY CONTACT INFORMATION

OREGON SHPO CLEARANCE FORM

Federal, State, or Local Agency Name: Housing Authority of Clackamas County	
Contact Name and Title: Mary Bradshaw, Development Project Manager	
Street Address, City, Zip: 13930 S. Gain Street, Oregon City, OR 97045	
Phone: 503-650-3186	Email: mbradshaw@co.clackamas.or.us
SHPO Mailing Address: Review and Compliance, Oregon SHPO, 725 Summer St. NE, Suite C, Salem OR, 97301	

Erin Christensen

From: Bradshaw, Mary [MBradshaw@co.clackamas.or.us]
Sent: Tuesday, June 01, 2010 2:10 PM
To: Erin Christensen; Tammie Schacher
Cc: Sanchez, Andrea
Subject: CHMP - SHPO #10-0747 - Clackamas Heights Redevelopment Project

Follow Up Flag: Follow up
Flag Status: Flagged

Erin,

Oregon City is considering the requirement of tribal review as part of their land use process. This would be in addition to the SHPO review. In anticipation of this, I contacted the local specialist Eirik Thorsgard who was willing to generate a concurrence letter based on our SHPO review. His response is below. It seems prudent to include in our OC application even if it isn't required at this time. It just maybe by the time we get underway.

Mary

Mary K. Bradshaw
Development Project Manager
Housing Authority of Clackamas County
www.co.clackamas.us/hacc/
503-650-3186 direct
503-650-3168 fax

Please note: Clackamas County has a 4-day work week therefore I am in the office Monday through Thursday.

-----Original Message-----
From: Eirik Thorsgard [mailto:Eirik.Thorsgard@grandronde.org]
Sent: Wednesday, May 26, 2010 4:37 PM
To: Bradshaw, Mary
Subject: RE: SHPO #10-0747 - Clackamas Heights Redevelopment Project

Hello Mary,
The Confederated Tribes of the Grand Ronde Community of Oregon Cultural Resources Department has reviewed the information that you have provided along with the Tribes archives and databases. We have identified no archaeological/cultural or Traditional Cultural Properties within the project area and concur with the recommendations of SHPO in regards to this project. If you need any further assistance please feel free to contact me.

Eirik Thorsgard MAIS
Cultural Protection Coordinator
Interim Tribal Historic Preservation Officer Confederated Tribes of the Grand Ronde Community of Oregon PhD Candidate Flinders University Adelaide, Australia

-----Original Message-----
From: Bradshaw, Mary [mailto:MBradshaw@co.clackamas.or.us]
Sent: Wednesday, May 26, 2010 4:09 PM

To: Eirik Thorsgard
Subject: FW: SHPO #10-0747 - Clackamas Heights Redevelopment Project

Hello Eirik -

Thank you for speaking with me the other day about our redevelopment project. I contacted Julie Osborne at SHPO regarding the archeological review during our recent SHPO review. She spoke with Susan White and replied with the below response. Is her response sufficient for you to provide a concurrence letter? I have attached our SHPO letter of 'No Significant Impact' for your reference. Please let me know if you would like additional information.

Thank you -

Mary

Mary K. Bradshaw
Development Project Manager
Housing Authority of Clackamas County
www.co.clackamas.us/hacc/
503-650-3186 direct
503-650-3168 fax

Please note: Clackamas County has a 4-day work week therefore I am in the office Monday through Thursday.

Hi Mary - I double checked with Susan White, archaeologist in our office. She indicated they would not need to review this project because it is replacing buildings that were constructed in 1942, and the area had already been disturbed. They do not have any concerns about this project from an archaeological standpoint. As always, if there is an inadvertent discovery, state law requires contacting SHPO. Let me know if you need additional information.

Thanks - Julie

Julie Osborne
Historic Preservation Specialist
Oregon SHPO
725 Summer St NE
Salem OR 97301
503-986-0661

-----Original Message-----
From: Julie Osborne [mailto:julie.osborne@state.or.us]
Sent: Tuesday, March 30, 2010 11:45 AM
To: Sirois, Mark
Cc: Bradshaw, Mary
Subject: SHPO #10-0747 - Clackamas Heights Redevelopment Project

Mark and Mary - Thanks for meeting with me this morning. Attached is a signed letter and clearance form for the project. We maintain the original signed paper copies in our files for 5 years, but if you need a paper copy mailed to you, just let me know.

Julie Osborne
Historic Preservation Specialist
Oregon SHPO
725 Summer St NE
Salem OR 97301
503-986-0661

>>> "Sirois, Mark" <MarkSir@co.clackamas.or.us> 3/25/2010 11:39 AM >>>
Julie,

Mary Bradshaw with the Housing Authority will meet us on Tuesday March 30th at 10 a.m. to tour the property.

We can meet at the property management office located at 13900 S. Gain Street and go from there.

Let me know if you need directions off I-205.

Thanks,

Mark Sirois

Clackamas County Community Development, a division of

Health, Housing and Human Services*

2051 Kaen Rd., #245, Oregon City, OR 97045

Main Line 503-655-8591

Direct Line 503-650-5664

Fax 503-655-8563

Web: www.clackamas.us/cd <http://www.clackamas.us/cd>

E-mail: marksir@co.clackamas.or.us <mailto:lori@co.clackamas.or.us>

Office Hours 7am-6pm Monday - Thursday. CLOSED FRIDAY.

* Clackamas County Department of Human Services is now known as Health, Housing and Human Services. This new name more accurately reflects what we do and who we serve, and distinguishes us from state agencies. Please visit our web site at http://www.clackamas.us/dhs <http://www.clackamas.us/dhs> to learn more.

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HOUSING AUTHORITY of CLACKAMAS COUNTY
P.O. BOX 1510 • 13930 SOUTH GAIN STREET • OREGON CITY, OR 97045-0510 503-655-8267 FAX: 503-655-8676 TDD: 503-655-8639

Clackamas Heights Master Planning and Redevelopment Public Participation Plan

Communicating with and involving the key stakeholders – and public – will be key to the Clackamas Height's Master Plan success and implementation. The purpose of the Public Participation Plan is to ensure that residents, neighbors, property owners, businesses, and other interested parties have convenient opportunities to become fully informed about the project and to provide input throughout the process. The Plan strives to focus on implementation needs: garner involvement and support; provide clear, consistent education and information; and ultimately create value for the project and property to realize build-out of the concept created.

PURPOSE

This document is a summary of the approach to public participation for the Clackamas Heights Master Planning process to begin in October 2009 and continue through to the submission of a HOPE VI Revitalization Grant to HUD in fall of 2010. It contains operating principles, proposed organizational structure, and a list of activities.

There are multiple direct stakeholders for the project including local governments (City of Oregon City and Clackamas County), property owners, neighbors, residents, community groups, and business owners adjacent to the Clackamas Heights property. The public outreach efforts include a program for citizen participation (building the plan with direct stakeholders) and a program for citizen education (informing the general public). In some instances, the method and type of outreach will be the same for all parties, and in other cases, it will be tailored to a specific group or message. This document is a breakdown of the public participation methods and it forms the basis of a working document for the planning process.

Desired Outcomes of the Clackamas Heights Master Planning Process

- Identification of preferred redevelopment options for the Clackamas Heights community to enhance livability, community amenities, accessibility and energy efficiency.
- Build community partnerships between residents of Clackamas Heights, Park Place neighborhood members, and the larger Oregon City and Clackamas County community throughout the process.
- Completion of a concept plan for the Clackamas Heights Redevelopment that will be submitted to HUD as part of a HOPE VI Revitalization Grant.

OPERATING PRINCIPLES

Public participation processes generally start by establishing goals for participation and operating principles. Below is a draft of these goals and principles, to be reviewed with the Clackamas Heights Redevelopment Advisory Group at their first meeting.

Public Participation Goal:
Include direct stakeholders to the greatest extent possible, while providing input and information opportunities for other interested parties, in order to develop a concept plan for redevelopment of Clackamas Heights.

Public Participation Principles:

1. Include direct stakeholders at key decision-making points/milestones throughout the process.
2. Develop avenues for partnering jurisdictions to participate throughout the process.
3. Maximize existing avenues for public participation, including the Park Place Neighborhood Association, civic organizations, etc.
4. Communicate with participants how their feedback is utilized in the process.
5. Be completely open to public input and ideas and provide timely feedback.
6. Respect community volunteers' time and ensure that when these resources are employed they are done so effectively and efficiently.
7. Ensure the public participation process opportunities are equitably provided across the spectrum of all interest groups.
8. Recognize that there are benefits associated with differences of opinion and ideals.
9. Work to build lasting community leadership and relationships, and lay the groundwork for development of private/public partnership opportunities.
10. Value the past and consider the future when making decisions.
11. Communication will be a two-way process between stakeholders and the Housing Authority of Clackamas County.
12. Provide a hospitable and welcoming environment to all participants.
13. Create opportunities to bridge issues, communities and neighborhoods, building upon common values.

ROLES AND RESPONSIBILITIES

In order to meet the project's timeframe and to adhere to the guiding principles, a project advisory group will be formed, to be called the "Clackamas Heights Redevelopment Advisory Group". Decisions and information that emerge from the Advisory Group will be translated to the public-at-large in a variety of ways. Below is an outline of the anticipated roles and responsibilities within the public participation plan.

Advisory Group
The Advisory Group serves in an advisory capacity and its input will inform the development of the Concept Plan. The Concept Plan may be adopted by resolution by Oregon City Council and the HACC Board of Commissioners. The Advisory Group should strive to craft and recommend approaches and solutions that are workable for a wide range of needs and interests. While consensus is desirable, it is not the goal of the

Advisory Group. The group should engage in open and constructive dialogue to ensure that potential solutions are well tested and that diverging opinions are aired, discussed and documented.

Housing Authority of Clackamas County Board of Commissioners
The HACC Board of Commissioners holds the authority to approve, refine, or deny recommendations that arise from the Redevelopment Advisory Group as issues pertain to HACC. In this capacity, the HACC Board will support the Master Planning process by seeking more information where necessary, and working closely with HACC Staff and Advisory Group members to offer guidance and input on relevant issues.

City of Oregon City Board of Commissioners
The City of Oregon City Board of Commissioners holds the authority pertaining to proposed land use changes to approve or deny the concept plan as presented by the Master Planning team and HACC staff at the end of planning process.

Residents
Clackamas Heights Residents will provide essential input and support throughout the Master Planning process. A Resident Working Group will be formed to provide input on planning for Community Supportive Services (CSS) programming and site design for redevelopment of Clackamas Heights. This group will report back to the Advisory Group at each meeting to provide feedback on resident priorities for programming and design elements.

General public
General pubic includes, but is not limited to: Neighborhood/Business Associations, Residents, Civic Organizations, Ethnic Communities, Businesses, Property Owners, Special Interest Groups, and Social Service Providers. Information derived from the public will be provided to the Task Force, Planning Commission and City Council for their consideration in recommendations and decision-making. The Project Team will provide meaningful forums and will work with members of the community to provide fair and equitable opportunities to voice needs and opinions related to the development of the Clackamas Heights concept plan.

Project Team

Staff Project Team
The Staff Team is charged with project coordination to keep the project moving forward and on schedule. The team will meet regularly to coordinate tasks and problem-solve. Staff Team, with the assistance of the Advisory Group, also will provide operational guidance of the project.

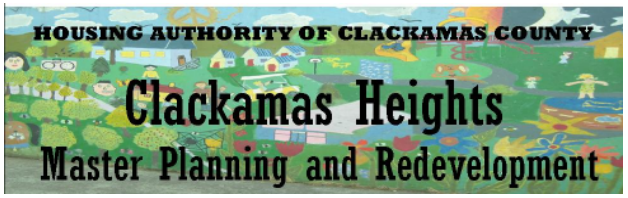
Consultant Project Team
The Consultant Team will work closely with the Staff to develop the plan and keep the project on time. Consultants also will participate in public events and Advisory Group meetings, as requested.

PUBLIC PARTICIPATION ACTIVITIES

A schedule for the Plan has been constructed to allow enough time for public input into the process, being mindful of the need to implement the Plan in a timely manner. The process is built upon past planning activities in the area.

Different stakeholders will require different levels of involvement and different opportunities for outreach – everything from a formal public hearing to reading an informational article in the newspaper. The public participation program outlined herein is intended to maximize diversity of participation within an efficient timeframe. :

- **Clackamas Heights Redevelopment Advisory Group Meetings**- 4 meetings
- **Community Design Workshop-** 4 day interactive workshop
- **Community Meetings-** 4 meetings during planning process
- **Stakeholder Interviews**
- **Project Website**- Frequently Asked Questions/general project information, meeting agendas & notes, draft documents, maps, and links to related sites.
- **Media Efforts-** Press releases and working with media in other ways.
- **Project Newsletters and Flyers**- Distributed to Clackamas Heights Residents, Park Place Neighbors, and Broader Community
- **Community Organization Announcements-** News and updates shared through community organization calendars
- **Information Kiosks-** Information posted on public kiosks at the Clackamas Heights property and Steve's Market on Holcomb Blvd.



Public Meetings Record

Meeting Date	Description	Location	In Attendance
9/29/2009 6:00-7:30 PM	**Resident Meeting**- First meeting to introduce redevelopment and master planning timeline to CH Residents	Clackamas Heights Community Center	HACC Staff, Residents of Clackamas Heights
10/21/2009 6:00-7:00 PM	**Immediate Neighbors Meeting**- First meeting to introduce redevelopment and master planning to immediate neighbors living in properties that face Clackamas Heights.	Park Place Church	HACC Staff, Immediate Neighbors of Clackamas Heights
11/2 and 11/3 2009	**Stakeholder Interviews** Community service providers, neighbors, and organziational representatives interviewed by Mithun	Clackamas Heights Community Center	Master Planning and Design Team, Interview participants
11/3/2009 4:30-6:30 PM	**Redevelopment Advisory Group Meeting #1**First meeting of the Advisory Group for redevelopment of Clackamas Heights	CH Community Center	HACC Staff, Mithun, Advisory Group Members
11/3/2009 6:30-8:30 PM	**Community Kick-Off Meeting**- Community wide meeting to kick-off redevelopment planning.	Park Place Church	HACC Staff, Mithun, Community members, CH residents.
11/16/2009 7:00-8:00 PM	**Park Place Neighborhood Association General Meeting-** HACC Executive Director Trell Anderson presented on Master Planning and Redevelopment of Clackamas Heights.	Oregon City View Manor Community Center	HACC Staff, Park Place Neighborhood members
11/18/2009 7:30-9:00 PM	**Holcomb-Outlook CPO Meeting-** HACC Executive Director Trell Anderson presented on Master Plan Process.	Oregon City View Manor Community Center	HACC Staff, Holcomb-Outlook CPO Members

Meeting Date	Description	Location	In Attendance
12/3/2009 5-7 PM	**Redevelopment Advisory Group Meeting #2**	Clackamas Heights Community Center	HACC Staff, Mithun, Advisory Group Members
12/8/2009 6:00-7:30 PM	**Resident Working Group Meeting #1-** Residents of Clackamas Heights met to discuss resident services.	Park Place Church	HACC Staff, residents of Clackamas Heights
12/15/2009 6:00-7:30 PM	**Community Forum-** Meeting facilitated by Deb Meihoff to discuss project facts and next steps with the community	Park Place Church	HACC Staff, Deb Meihoff, Community members
1/16/2010 10-5pm	**Community Open House and Tour of New Columbia**	CH Community Room and New Columbia in Portland	HACC Staff, Community members , Stephen Antupit (Mithun)
1/19/2010 1-2 PM	**Community Design Training/Resident Working Group #2** Members of the design team gave "Design 101" training.	Park Place Church	HACC Staff, Community Members, Mithun reps
1/19/2010 7-9 PM	**Community Kick Off Meeting** Opening meeting of Design Workshop	Park Place Church	HACC Staff, Community Members, Mithun reps
1/20/2010 10-6 PM	**Drop In Design Session** Open work sessions hosted by Mithun and open to community members	CH Community Room	Mithun reps, Community Members, HACC Staff
1/20/2010 7-8 PM	**Community Design Training/Resident Working Group #2** Members of the design team gave "Design 101" training.	Park Place Church	Mithun reps, Community Members, HACC Staff
1/21/2010 10-11:30 AM	**CSS and Developers Meetings-** Two meetings held to discuss CSS potential partnerships and area Developments	OCVM Community Room and CH Community Room	HACC Staff, Community Service Providers, Area Developers, OC & County Staff and Mithun
1/21/2010 5-6:30 PM	**Redevelopment Advisory Group Meeting #3**	CH Community Room	HACC Staff, Mithun, Advisory Group Members
1/21/2010 7-9 PM	**Community Interim Meeting** Design Team presented three different concept options to public for feedback	CH Community Room	Mithun reps, Community Members, HACC Staff

Meeting Date	Description	Location	In Attendance
1/22/2010 9-3 PM	**Drop In Design** Session Open work sessions hosted by Mithun and open to community members	CH Community Room	Mithun reps, Community Members, HACC Staff
1/22/2010 7-9 PM	**Community Meeting** Design Team presented draft concept plan to public for feedback	Park Place Church	Mithun reps, Community Members, HACC Staff
2/9/2010 6:30-8:00 PM	**Resident Working Group Meeting #3-** Residents of Clackamas Heights met to discuss relocation	Park Place Church	Residents and HACC Staff
2/22/2010 7-9 PM	**Park Place Neighborhood Association General Meeting-** HACC Executive Director Trell Anderson presented Concept Plan and gave general update on Master Plan process.	OCVM Community Room	Trell Anderson, PPNA Members
2/25/2010 5-7:00 PM	**Redevelopment Advisory Group Meeting #4**	CH Community Room	HACC Staff, Mithun, Advisory Group Members
3/9/10 6:30-8:00 PM	**Resident Working Group Meeting #4** Residents of Clackamas Heights met to discuss the Draft Concept Plan	Park Place Church	Residents and HACC Staff
3/20/2010 10 AM- 12 PM	**Community Open House and Presentation-** Update on Master Plan and presentation on energy efficiency for the home	CH Community Room	HACC Staff, Residents, Neighbors, and rep from Earth Advantage
6/14/2010 6:00-7:00 PM	**Community Update Meeting**	Park Place Church	Residents ,HACC Staff, Deb Meihoff

Sign-In Sheet

Park Place Neighborhood Meeting 7 /15/2010

NAME	PHONE	EMAIL
Kellie Fine	503-539-0025	
Doug Smeber	503 789 5579	
Nancy Walters	503 722-9453	
Linda Israelson	557-1126	
Don Miller	656-7777	DMILLER89@AOL.COM
Allen Taylor	656 0831	allen.taylor@ieee.org

Sign-In Sheet

Park Place Neighborhood Meeting 7 /15/2010

NAME	PHONE	EMAIL
Judy Chipps	503-657-5521	———
LaVerne Lee	503-742-1369	Lavlee@MSN.COM
Ellan G. Stewart	503-659-0764	
Linda Thompson	503-631-7652	randlthom@ccwebster.net
LINDA & STEVE VANHAVERBEKE	503-806-6631	steve@vanhaverbeke.org
Carter Stein Nancy Walters	503 722 9453	paulcarterstein@gmail.com

Park Place Neighborhood Association
The Neighborhood at the End of the Oregon Trail
City of Oregon City, Oregon
parkplaceneighborhood.org

May 2010

RE: Housing Authority of Clackamas County
Clackamas Heights Redevelopment

On behalf of Park Place Neighborhood Association (PPNA), I would like to express our strong support for the Clackamas Heights Concept Plan and related redevelopment efforts.

The Housing Authority of Clackamas County is a central and vital aspect of our community. HACC has fostered a partnership with PPNA and we have worked together for our mutual benefit over the years. The HACC properties host a variety of resources including community buildings for public meetings and a productive community garden.

Serving as co-chair of the Advisory Group, I deeply respect the planning process undertaken and the team of experts, residents, governmental, and public interests that contributed their knowledge. The Clackamas Heights Concept Plan process allowed us to develop a deeper understanding and a truly shared vision for the future.

The project team made an excellent outreach effort across a wide spectrum of stakeholders. They really listened to and incorporated all input received, creating a plan that is that is sensitive to the natural and built environment and that is responsive to addressing the needs of housing residents and the community at large.

Although we live in a regional center, for those who don't drive our neighborhood is geographically isolated from many daily needs and services due to a variety of physical barriers and limited alternate transportation. The Concept Plan offers solutions to provide more services locally, employment and learning opportunities, and a variety of transportation improvements and site amenities that will make a tremendous positive impact for the entire neighborhood.

The Plan is very responsive to community sustainability goals and values by preserving natural resources, maximizing energy efficiency and water retention and reuse, and building for long-term durability and maintenance. It also provides a level of food and energy security that will help enable self-sufficiency for residents. Finally, the plan honors and respects the natural and historic heritage of this unique place at the End of the Oregon Trail.

It is time for Clackamas Heights to adapt to a changed world after serving numerous people for nearly three quarters of a century. We believe the Concept Plan is the best approach for all residents that will elevate our existence and serve as a model for other communities.

Thank you for your consideration.

Sincerely,
Nancy Walters

Nancy Walters, Chair
Tom Geil, Vice Chair
Carter Stein, Secretary
Steve VanHaverbeke, Treasurer

Clackamas Community Land Trust

11062 SE 21st Avenue
Milwaukie, Oregon 97222-7603

Phone: 503-659-1618
Fax: 503-496-5113
www.clackamasclt.org

City of Oregon City
Planning Commission

Re: Clackamas Heights Concept Development Plan

3/24/2010

Dear Chair Powell and Commissioners,

I am writing to express my support for the Concept Plan for redevelopment of Clackamas Heights. As a participant in the planning process, I believe that the plan accurately reflects the opinions and vision expressed by community members.

Clackamas Community Land Trust believes this project will help revitalize the Park Place neighborhood and the Clackamas Heights community by bringing needed services, economic development opportunities and amenities to the surrounding area. The proposed childcare center, mixed income housing including affordable homeownership, community garden, retail shops, and new community center will create a tremendous positive impact for the neighborhood.

I have heard from various people who are impressed with the participatory process that the Housing Authority has been through. They have been able to make changes based on community suggestions instead of just coming with an already devised plan.

Sincerely,

Sarah Buckley
Executive Director

March 18, 2010

City of Oregon City
Planning Commission
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RECD 03/22/10 PM 3:31

Re: Clackamas Heights Concept Development Plan

Dear Chair Powell and Commissioners,

As a member of the Advisory Group set up by the Clackamas County Housing Authority to bring outside expertise to the Clackamas Heights planning process, I found the CCHA staff and its professional consultants to be well informed and highly responsive to the community. The Concept Plan reflects extensive community input, and I believe the proposed mixed-income affordable houses, childcare center, community garden, retail shops, and new community center will provide good housing for families and revitalize the neighborhood.

In particular, the Concept Plan calls for housing and community buildings that will use much less energy, have improved health and safety, and lower maintenance costs, all of which will save money for both families and CCHA in the future.

I'd like to thank the CCHA for inviting me to participate, as it has been a real pleasure to see their thoughtful analysis of the community's needs and how they worked with a wide spectrum of community input to create a sustainable new neighborhood.

Sincerely,

Michael O'Brien

Michael O'Brien
Green Building Program
Portland Bureau of Planning and Sustainability
1900 SW Fourth Avenue 7th Floor
Portland OR 97201

Clackamas Hieghts Master Plan
Resident Postcards of Support Participants

Resident Name
Tiana Allison
Sitera Allison
Pat Mcleod
Linda Gonzalez
Erica Allison
Victor Holman
Laverne Lee
Linda Israelson
Ruth Murrell
Lynn Mindel
Judy Chipps
Melody Landry
Amanda Travis
Bessie Spencer
Roy Spencer
Sarah Liles
Renne Forte
Katy Reynolds
Jennifer Masters
Kari Gibson
Patricia Payson
Patrick Mckonly
Vyacheslaw Alla Orchenko
Dianna Obernauer
Don Obernauer
Melody Jennings
Charlotte Beardslie
Jane Cortez
Stanley Tiffany
Ellen Hardwickson
Resident: 574 D Street
Resident : 514 A Street

Yes!
I support the Master Plan for Clackamas Heights.
Dear Oregon City Planning Commission,
As a resident of Clackamas Heights, I believe this plan will help revitalize our community by improving housing quality and options, bringing needed community services, and benefiting the overall neighborhood with enhanced amenities.
Sincerely, _____
Clackamas Heights Resident
Address_____

Yes!
I support the Master Plan for Clackamas Heights.
Dear Oregon City Planning Commission,
As a resident of Clackamas Heights, I believe this plan will help revitalize our community by improving housing quality and options, bringing needed community services, and benefiting the overall neighborhood with enhanced amenities.
Sincerely, _____
Clackamas Heights Resident
Address_____

Yes!
I support the Master Plan for Clackamas Heights.
Dear Oregon City Planning Commission,
As a resident of Clackamas Heights, I believe this plan will help revitalize our community by improving housing quality and options, bringing needed community services, and benefiting the overall neighborhood with enhanced amenities.
Sincerely, _____
Clackamas Heights Resident
Address_____

Yes!
I support the Master Plan for Clackamas Heights.
Dear Oregon City Planning Commission,
As a resident of Clackamas Heights, I believe this plan will help revitalize our community by improving housing quality and options, bringing needed community services, and benefiting the overall neighborhood with enhanced amenities.
Sincerely, _____
Clackamas Heights Resident
Address_____

Agenda Item No. 3b
Meeting Date: 30 Aug 2010

COMMISSION REPORT: CITY OF OREGON CITY

TO:	Planning Commission
FROM:	Tony Konkol, Community Development Director
PRESENTER:	Pete Walter, Planner
SUBJECT:	PZ 10-01 and ZC 10-01. The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
Agenda Heading: Public Hearing	
Approved by: Tony Konkol, Community Development Director	

RECOMMENDED ACTION (Motion):

Recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing.

BACKGROUND:

Please refer to the attached Staff Report and Recommended Conditions of Approval.

BUDGET IMPACT:

FY(s):
Funding Source:

ATTACHMENTS:

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

AUGUST 30, 2009 PLANNING COMMISSION HEARING

FILE NO.: PZ 10-01: Comprehensive Plan Map Amendment
ZC 10-01: Zone Change

APPLICANT/ OWNER Marylwood, LLC, Attn: Phil Gentemann
7128 SW Gonzaga St
Portland, OR 97223

REPRESENTATIVE: Theta, LLC
PO Box 1345
Lake Oswego, OR 97035

REQUEST: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.

LOCATION: 19896 Beavercreek Road
Clackamas County Map 3-2E-10C, Tax Lot 800

REVIEWER: Pete Walter, AICP, Associate Planner
Bob Cullison, Development Services Manager

RECOMMENDATION: Recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing.

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final. THE APPLICATION IS ON FILE AT THE OREGON CITY CITY HALL. IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 722-3880.

I. BACKGROUND:

The property in question is annexed to Oregon City. It is designated Future Urban on the City's Comprehensive Plan. In order to develop the property the applicant has taken the first step of applying for a change to the Comprehensive Plan designation and city zoning.

The applicant has chosen to amend the Comprehensive Plan designation from Future Urban to Mixed Use Commercial, and has applied for a Zone Change from FU-10 – Future Urban to MUC-1, Mixed Use Corridor.

The major review criteria are consistency with the Oregon City Comprehensive Plan and Statewide Planning Goals. The goals and objectives of the Beavercreek Road Concept Plan have not been used as review criteria since the plan was remanded to the City and to Metro by the Land Use Board of Appeals (LUBA) on appeal.

Additionally, since the proposed zone change has been determined to affect an ODOT transportation facility, State Highway OR-213, the applicant has to show compliance with the State Transportation Planning Rule OAR 660-12-0060 (TPR), and has submitted a Traffic Impact Analysis pursuant to state and city guidelines in this regard.

II. BASIC FACTS:

1. **Property Description**: The subject property is located at 19896 Beavercreek Road in Oregon City, also known as T3S-R2E-10C tax lot 800. The property is 9.59 acres in size, triangular in shape and is relatively flat with slopes not exceeding 5% (running SE to NW).

   The subject property is surrounded by undeveloped land to the north, northeast and southeast, and was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Carrington Place, an existing residential subdivision zoned R-6, and existing single family residential lots zoned R-3.5 and R-10 are all to the southwest, and the Oregon City High School is to the northwest, both of which are located across Beavercreek Road from the subject site. A 50-foot wide Williams Natural gas pipeline corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area except for parking/maneuvering, open space and/or setbacks. The signalized intersection of Meyers and Beavercreek Road is located along the subject property frontage.

2. **Zoning/Permitted Use:** The property is zoned Future Urban – 10, which is a County holding zone with a 10-acre minimum lot size. The site is also under Farm Use tax deferral.

3. **Surrounding Uses/Zoning:** Properties to the north, east and south of the subject site are zoned FU-10, and are part of the same 122-acre annexation approved by the voters that annexed the subject parcel in 2008 (Oregon City Planning file AN 07-02, Metro File CL1807). The property contains five (5) single-family dwellings. It is currently zoned FU-10 "Future Urbanizable". Properties to the west across Beavercreek Road include Oregon City High School (Zoned R-8 Single Family Residential) and city subdivisions zoned R-6 Single Family Residential and R-3.5 Dwelling District.

4. **Density Calculations:**There is currently one house on the property. If the proposed application is approved the property could be developed with a variety of uses including multi-family residential use. .

5. **Comments:** Notice of the proposed subdivision with details of the development and requesting comments was sent to the Department of Land Conservation and Development, advertised in the Clackamas Review, mailed to property owners within 300 feet of the subject site and the property was posted with a Land Use Action sign requesting comments.

   Comments were received from the following persons:

   Mike Mermelstein, Caufield Neighborhood Association. (Exhibit F). The Caufield Neighborhood Association is concerned that the permitted uses under MUC-1 is too broad, and would like to see the list narrowed and more focused. The Neighborhood Association is also concerned about the appearance of commercial and development along Beavercreek Road.

   Regarding the Caufield Neighborhood Association's comments, the applicant has requested re-zoning to MUC-1, which if approved would affect the allowable uses of the property. However, the applicant does not propose to narrow or alter the zoning code language governing permitted uses in the MUC-1 zone district. A request to narrow the range of permissible uses for the MUC-1 zone district would require a separate, Legislative amendment to the zoning code that would need to be approved by the Planning Commission and City Commission. Such a request has not been proposed.

   A specific development proposal is not proposed at this time. Future development of the site would require a separate Site Plan and Design Review application, at which time the adopted architectural and landscaping design review requirements of the Oregon City Municipal Code would apply.

   Gail Curtis, AICP, Senior Planner, Oregon Department of Transportation, (Exhibit D). ODOT reviewed the application and provided comments regarding the impact of the proposed rezoning on Highway 213. The proposed rezoning would have a significant effect, per the requirements of OAR 660-12-0060, on the intersection of the State Highway OR-213 and Meyers Road and is required to provide appropriate mitigation for the impact.

   The issues raised by the comments submitted that address an approval criteria have been addressed throughout the report and staff has provided findings, and when appropriate, conditions, to address the issues raised and to ensure that the proposal complies with the approval criteria.

DECISION-MAKING CRITERIA:

Municipal Code Standards and Requirements

OCMC Title 17, Zoning:	Chapter 17.29 - "MUC"—Mixed-Use Corridor District Chapter 17.50, Administration and Procedures Chapter 17.68, Zone Changes and Amendments
Oregon City Comprehensive Plan (2004)	Relevant Goals and Policies (OCMC 17.68.020.A.)
Statewide Planning Goals	OAR 660-015-000(1) – (14)
Metro 2040 Urban Growth Functional Plan	Titles 1 and 7.

OREGON CITY MUNICIPAL CODE

17.50.050 - Preapplication conference and neighborhood meeting.

A. Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents. Conditional use, subdivision, or site plan and design review (excluding minor site plan and design review) applications shall schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended. The applicant shall send, by certified mail, return receipt requested, a letter to the chairperson of the neighborhood association and the citizen involvement committee describing the proposed project. A meeting shall be scheduled within thirty days of the notice. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall hold their own meeting after six p.m. or on the weekend, with notice to the neighborhood association, citizen involvement committee, and all property owners within three hundred feet. If the applicant holds their own meeting, a copy of the certified letter shall be required for a complete application. The meeting shall be held within the boundaries of the neighborhood association or in a city facility.

Finding: The applicant advertised and held a neighborhood meeting with the Caufield Neighborhood Association on January 26th, 2010 to discuss the proposal with affected property owners. This standard is met.

B. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this Code, and

any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

C. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the director's opinion, the development does not warrant this step.
(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Finding: The applicant attended the required pre-application conference on November 9, 2009 (See Exhibit A4), and submitted the formal application within 6-months of the pre-application conference. This standard is met.

17.68.020 Zone Changes and Amendments – Criteria
The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.
The applicant states that as outlined within this narrative below, the requested zone change and comprehensive plan amendment are consistent with the applicable goals and policies of the City's Comprehensive Plan.

According to the applicant, the goal of the proposal is to establish a City zone so that the property may be developed in the future to the highest and best use. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation will be in concert with the goals of the City. The Mixed Use Corridor (MUC) District is designed to apply along selected sections of the transportation corridors.

Goal 2.3 Corridors
Focus transit-oriented, higher intensity, mixed-use development along selected transit corridors.

Policy 2.3.1
Ensure planning for transit corridors includes facilities and access management, aesthetics (including signage and building facade improvements), infill and redevelopment opportunities, high-density residential development, and business assistance to existing businesses.

Finding: The applicant indicates that the subject property is at the existing signalized intersection of Beavercreek and Meyers Roads and will serve as the only access from the transit corridor. This connection will provide for connectivity and circulation opportunities to a future connected local street network. The MUC-1 zone will allow for mixed use development that could include high density residential and a variety of medical, office and retail uses. Since development and use is not proposed as a part of this application, specific building requirements (aesthetics, facades, etc.) will be reviewed at the time a site plan and design review application is submitted. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.4 Neighborhood Livability
Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.2
Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The property was originally designated low density residential and was subsequently designated Future Urban by the City in 2004. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the city. The MUC-1 designation allows for a variety of uses which all relate to potential services and housing options that could help create the vibrant core area that is the goal of the City. Since development and use are not specifically proposed as a part of this application, specific requirements would be reviewed under the future design review application. The permitted uses offer opportunities when development occurs to project a vibrancy and uniqueness through architecture, landscaping and mixed uses. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.3
Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.

Finding: Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Bus service is already available at Highway 213, Beavercreek Road and Molalla Road with service to Clackamas Community College. In time, Tri-Met bus service will be extended to the site and already provides conductivity to the light rail at Clackamas Town Center. The Beavercreek road cross section provides for bike lanes. Access to the site will be at the signalized intersection of Beavercreek and Meyers Roads which provides connectivity from the existing residential neighborhoods, school and this future mixed use. With the potential uture design review application for the subject property, transportation requirements will be addressed to meet this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.4
Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. When annexed, the property was assigned the Clackamas County zoning

designation of FU-10, which is a "holding" zone requiring a 10-acre minimum lot size. The surrounding farmland property to the north, northeast and southeast was brought into the UGB in 2002/2004 and has a Comprehensive Plan designation of Future Urban. The requested MUC-1 zone allowed uses fall into this category and would be consistent with these goals. There are no environmental constraints on the subject property. However, there is a 50-foot wide gas corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area. This strip would be suitable for parking/maneuvering, open space and/or setbacks. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Finding: The applicant indicates that there are no plans for a neighborhood school on this property. Oregon City High School is located to the northwest of the subject site. The MUC-1 zone includes assisted living facilities, parks and childcare centers as allowed uses. Public or private education facilities are allowed as a Conditional Use in the MUC zone. Therefore, no barriers would be created by allowing this requested zone change and comprehensive plan amendment. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.5 Retail and Neighborhood Commercial
Encourage the provision of appropriately scaled services to neighborhoods.

Policy 2.5.1
Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.

Finding: Complies with Conditions. Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. With the potential future design review application for the subject property, these goals will be addressed to meet this policy. Limited access from Beavercreek Road will reduce conflicting traffic movements and provide an avenue for conductivity and circulation with a future local street network. Bike lanes are included in the Beavercreek Road design and will encourage ridership from this site to residential areas. The proposed mixed use corridor district encourages improved aesthetic character by requiring substantial landscaping minimums.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from County FU-10 to the Mixed Use zone.

Given a significant affect was identified under the TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from County FU-10 Future Urban to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 2.5.2
Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.

Finding: The applicant indicates that the subject property is located at the intersection Beavercreek and Meyers Roads which are classified as neighborhood collectors or higher. The Mixed Use Corridor District has the range of permitted uses that could provide the local residents with vital goods, services and employment. Beavercreek Road has been identified as a transportation corridor. The subject property is at the signalized intersection of Beavercreek and Meyers Road. The MUC-1 zone would allow for a variety of retail and medical uses that could potentially serve the community. While the development plans for the site will be determined at a future date, the proposed plan amendment and zone change are consistent with this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.5.4
Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Finding: The applicant indicates that the subject property is on the easterly side of Beavercreek Road and separated from low density housing. The MUC-1 zone allows for mixed use development along corridors which includes multi-family housing. Thus, any future development of the site that may include commercial areas would be consistent with this policy. The currently existing housing near the site across Beavercreek

Road is a combination of residential zones including R-6, R-3.5 and R-10. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.6 Industrial Land Development
Ensure an adequate supply of land for major industrial employers with family-wage jobs.

Policy 2.6.8
Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

Finding: The subject property is not identified as employment land on Metro's 2040 Map and was not brought into the Urban Growth boundary to meet regional employment needs. The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current holding zone is County FU-10 Future Urban, which has a 10-acre minimum lot size. The property was included as a part of the Beavercreek Road Concept Plan, however it was brought into the UGB prior to the Title 11 concept planning requirement and therefore may be considered for rezoning irrespective of the status of the Beavercreek Road Concept PlanThe requested zone of MUC-1 would allow for a variety of uses that will add employment opportunities to the area and meet the goals of the Beavercreek Road Concept Plan. Many of the permitted uses in the MUC zone, such as professional services, dental services, and veterinary clinics are family-wage jobs. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.

Policy 2.7.1
Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current Oregon City Comprehensive Plan map (Ordinance No. 08-1014) identifies this area as FU - future urban. Permitted uses in the MUC-1 zone offer an array of uses including multi-family and commercial uses. These allowed uses are consistent with the goals and policies to accommodate growth. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.2
Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:

- *Low Density Residential (LR)*
- *Medium Density Residential (MR)*
- *High Density Residential (HR)*
- *Commercial (C)*
- *Mixed Use Corridor (MUC)*
- *Mixed Use Employment (MUE)*

- *Mixed Use Downtown (MUD)*
- *Industrial (I)*
- *Public and Quasi-Public (QP)*
- *Parks (P)*
- *Future Urban Holding (FUH)*

Finding: The applicant indicates that the requested comprehensive plan amendment would change the zoning designation of this site to MUC, which is an allowed classification under this policy and would help in meeting the goals of property use for the area. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.3
Recognize the design types of Metro's 2040 Growth Concept. Establish boundaries for the Regional Center in Downtown Oregon City; Corridors along 7th Street, Molalla Avenue, Beavercreek Road, and Highway 99; Industrial areas; and for Inner and Outer Neighborhoods.

Finding: The applicant indicates that the Metro 2040 Growth Concept map designated this property as an "outer neighborhood", which is a very low density residential designation. The property was designated FU-10 in 2004, and included in the concept planning process for the Beavercreek Road Concept Plan due to it's being contiguous with lands along Beavercreek Road that were undergoing Concept Planning pursuant to Metro Title 11. As a part of the Beavercreek Concept Plan this property was envisioned to be a sustainable community with high-density mixed-use employment and housing. Beavercreek Road has been identified as a transportation corridor, and the subject property is at the intersection of Beavercreek Road and Meyers Road. The MUC-1 zone and the corresponding uses together with an MUC Comprehensive plan designation fit in with these goals. The applicant indicates that Metro has provided support of the proposal. **The applicant has adequately demonstrated compliance with this policy.**

Goal 6.1 Air Quality
Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1
Promote land-use patterns that reduce the need for distance travel by single-occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Finding: The applicant indicates that one of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation corridor, where multiple forms of transportation will be available. The MUC-1 zone allows and encourages mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 8.1 Developing Oregon City's Park and Recreation System

Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.5
Identify and construct a network of off-street trails throughout the city for walking and jogging.

Finding: The applicant indicates that an MUC-1 zone would not interfere with any adopted trail being developed in the future. Further, there is a 50-foot wide gas corridor easement that runs across the northerly corner of the property, which creates a strip of unbuildable area that may be suitable for a walking trail per the easement guidelines. Specific plans for a trail network on the parcel would be required at the time a development is proposed. **The applicant has adequately demonstrated compliance with this policy.**

Goal 9.8 Transportation System
Recognize the importance of the land use-transportation link and encourage businesses to locate in areas already served by the type of transportation system they need.

Policy 9.8.1
Through coordination with TriMet and local employers, encourage and promote the use of mass transit to travel between residential areas and employment areas.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan. An MUC-1 zone would encourage mixed-use development that would benefit from multi-modal transportation. Currently bus service is available at the intersection of Beavercreek Road and Hwy. 213, and to the Clackamas Junior College on Hwy. 213. Future service to the High School and this property is expected when justified. This would be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Policy 9.8.5
Work with the Oregon Department of Transportation to preserve and improve the capacity of Highway 213 and its intersection with I-205.

Finding: Complies with Conditions. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis and the required mitigation. The applicant indicates that a traffic report has been prepared that studies the effects of various uses allowed by the MUC-1 zone to the area. The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change. Mitigation has been identified. A more detailed review would be required at time of development application (site plan and design review). **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 9.8.7
Assess methods to integrate the pedestrian, bicycle and elevator transportation modes into the mass transit system.

Finding: Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan as well as a Transit Corridor from the entrance to Clackamas Community College campus north.. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. This will be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Goal 10.1 Diverse Housing Opportunities
Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Policy 10.1.3
Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Finding: the applicant indicates that currently the subject property has a holding zone of FU-10. The proposed rezoning to MUC-1 is reasonable given the zones goals of mixed use and high density residential. The multi-family use allowed under MUC-1 would allow for a potential alternative to single family homes already in the area. **The applicant has adequately demonstrated compliance with this policy.**

Goal 11.1 Provision of Public Facilities
Serve the health, safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities.

Policy 11.1.4: Support development of underdeveloped or vacant buildable land within the city where public facilities and services are available or can be provided and where land use compatibility can be found relative to the environment, zoning and comprehensive plan goals.
Policy 11.1.6

Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Findings: The adequacy of respective Public Facilities is addressed below.

Water, Sewer, and Stormwater Facilities

According to the Oregon City Development Services Manager, the sanitary line at the end of Emerson Court does not extend to Beavercreek Road. But if an easement was obtainable, the sewer line could be extended and would work to serve the subject property for development or if an easement cannot be obtained, the applicant can connect into the public system by going south to Glen Oak and replacing a section of sanitary line to a manhole about 330 feet to the west. Public sewer services are available and sized to accommodate additional flows from this property. The property is appropriately sized so that stormwater be handled on-site and eventually directed to the nearest natural drainageway and compliance is feasible. The water line in Beavercreek Road is a 16-inch line.

Transportation
Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis.

Schools
Oregon City School District did not comment on this application.

Police
The impact of approximately nine acres of mixed-use development on the capacity of the police is minimal and would be addressed when the actual development application is submitted. When the property was annexed, a Development Agreement (Exhibit G) was approved to assure adequate police services would be provided to new development on the property. At this time the applicant feels confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire Protection
Fire protection for property would be provided by Clackamas Fire District #1. Applicant indicates that the much larger Oregon City High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Staff has reviewed the applicant's proposal and finds that the public facilities and services are presently capable of supporting the requested comprehensive plan amendment and zone change. With the exception of transportation system impacts, as described under Section 17.68.020(B) and (C), **the applicant has adequately demonstrated compliance with this policy.**

Goal 12.1 Land Use-Transportation Connection
Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.3
Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the proposed MUC-1 zone would encourage mixed uses that would benefit from being on Beavercreek Road which has been designated a transportation corridor. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.5 Safety
Develop and maintain a transportation system that is safe.

Policy 12.5.1
Identify improvements that are needed to increase the safety of the transportation system for all users.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020 (C) for a detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the traffic analysis has identified improvements that will be needed to increase the safety of the local transportation system. Beavercreek Road has been identified as a major arterial transportation corridor in the city's Transportation System Plan. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. The applicant states that the proposed MUC-1 would encourage mixed-use development that would be benefited by multi-modal forms of transportation. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.6 Capacity
Develop and maintain a transportation system that has enough capacity to meet users' needs.

Policy 12.6.1
Provide a transportation system that serves existing and projected travel demand.

Finding: Please refer to the findings under Section 17.68.020(C) for a detailed analysis of the applicant's Traffic Impact Analysis and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Capacity of the transportation system would be reviewed in more detail at time of development application.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period of 2027.

With the mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 12.6.2
Identify transportation system improvements that mitigate existing and projected areas of congestion.

Finding: Please see findings for Policy 12.6.1 above.

Goal 13.2 Energy Conservation
Plan public and private development to conserve energy.

Policy 13.2.1
Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).

Finding: The applicant indicates that at this time the property owner is proposing a zone change from FU-10 to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The MUC-1 Zone would appear to meet the intent of this policy for mixed-use development and increased density near activity centers and along corridors. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed MUC zoning and comprehensive plan designation will be in concert with the goals of the City, and the above policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.1 Urban Growth Boundary
Establish, and amend when appropriate, the Urban Growth Boundary in the unincorporated area around the city that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including residential, commercial, industrial, and institutional.

Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth Boundary.

Finding: This property was brought into the UGB prior to the concept planning requirement. (Exhibit I). The applicant indicates that the property was added to the UGB in 1979 and was not subject to the concept

planning requirements of Title 11. Surrounding farmland property was brought into the UGB in 2002 and 2004. No changes to the UGB are proposed as a part of this application.

The Beavercreek Road Concept Plan was adopted by the City in 2008. While the concept plan is the subject of a LUBA remand to the city and Metro in order to reconcile certain findings regarding adopted Design Type consistency with the Metro 2040 plan, the adopted concept plan does provide a publicly shared vision for development of lands, including the subject property, within the Urban Growth Boundary. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Policy 14.3.4
Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Finding: Amendments to the Capital Improvement Program have been adopted to assure orderly provision of services to growth areas in accordance with this policy. The most recent updates include an updated Transportation System Development Charge (TSDC) that does include urban level development assumptions within the Beavercreek Concept Plan area. The new TSDC's were adopted by Resolution 09-02 (Exhibit H). Additionally, the City TSDC includes 30% of the estimated costs of State Facility Projects that are located within the City limits, which includes impacted intersections on Highway 213. **The applicant has adequately demonstrated compliance with this policy.**

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed in the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Sewer, Water, Storm Drainage, Recreation, Good and Services, Fire, Police

Finding: The adequacy of these public facilities and services was address above under Goal 11.1.1. Adequacy of Transportation Facilities is addressed below.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Trip Generation
The applicant has submitted a TPRA which provides an explanation of the rationale for a mixed use development scenario based on the proposed zoning, overall parcel size, and limitations imposed on the parcel by the required street network necessary to develop adjacent lands east of the parcel within the Urban Growth Boundary. It further provides a detailed analysis of trip generation using a combination of land uses consistent with MUC-1 zoning consisting of the following:

- Shopping center (20,000 square feet)
- Office (80,000 square feet)
- Townhouse/condominium (30 units)

The TPRA indicates that the net increase was calculated to be 173 new primary trips due to the rezoning.

Transportation Planning Rule
For zone changes and comprehensive plan amendments, the City must make findings that the proposed amendment complies with the TPR OAR 660-012-0060. There must be substantial evidence in the record to either make the finding of "no significant effect" on the transportation system, or, if there is a significant effect, assurance that the allowed land uses are consistent with the identified function, capacity, and performance standard of the transportation facility within the planning horizon (year 2027).

The City's Transportation Consultant, Replinger and Associates, reviewed the applicant's Transportation Planning Rule Analysis (TPRA) Exhibit C.

Analysis Period
The TPRA uses year 2027 as the horizon year. Traffic volumes for this year were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City.

Operations / Intersection Analysis
Traffic operations analysis was conducted for the PM peak hour for 2027 with and without the proposed rezoning. In addition, at ODOT's request, the analysis was conducted using two versions of the street network:

1) With the planned extension of Meyers Road between Highway 213 and Beavercreek Road; and
2) Without the extension of this section of Meyers Road.

The analysis indicates that the intersections along Highway 213 from Beavercreek Road to Meyers Road are expected to exceed ODOT's mobility standards by 2027 without the development, but that other intersections are calculated to meet operational standards. The engineer notes that this is consistent with the analysis conducted for the Beavercreek Road Concept Plan, although that plan is the subject of a remand from the Land Use Board of Appeals (LUBA).

The "with rezoning" analysis adds the predicted 173 additional trips to the original year 2027 volumes. ODOT determined that if the rezoning caused the volume-to-capacity ratio (v/c) to increase by more than 0.01, they considered it to be a significant impact and thus requires mitigation. For the street network scenario that assumes Meyers Road is not extended, the two locations at which this criterion is met are: Highway 213/Molalla Avenue and Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 5, which is provided here:

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

For the scenario that assumes Meyers Road is extended, the only intersection potentially exceeding the >0.01 v/c criterion is Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 6, which is provided here:

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

Reasonably Likely Improvements

ODOT provided comments (Exhibits D. and E.) regarding the proposed project. For evaluation of local plan amendments and zone changes, Section 660-12-0060 of the TPR requires that needed improvements either have committed funding, are in a financially constrained Metropolitan Planning Organization (MPO) transportation plan, or are "reasonably likely" to be provided by the end of the planning period in order for the capacity provided by the needed improvement to be considered "available" to the proposed amendment.

The key location is Highway 213/Meyers Road. Meyers Road between Highway 213 and Beavercreek Road is included in the City's TSP. As a new road in a new corridor, its implementation is more dependent on development than an already-existing facility that needs to be upgraded.

Since adoption of the TSP, the easterly segment of Meyers Road has been constructed and a condition of approval placed on the Clackamas Community College which makes it highly likely that the westerly portion will be constructed within the 16-year planning horizon assessed for the proposed rezoning (Exhibit K). The central segment is somewhat more dependent on development. Since the traffic forecasts for 2027 are predicated on considerable regional development, it seems highly likely that both the development assumed in the College's Master Plan and the development of the privately held parcels in the central segment will occur by 2027.

Furthermore, the cost of the Meyers Road Extension from Highway 213 to High School Lane was included in the City's 2009 Transportation System Development Charge Study, with a city funding responsibility of 100%, with a total estimated cost of $10,000,000 and an SDC eligible cost of $5,415,282 (Exhibit N). The city is already collecting SDC's for this needed improvement.

Subsequently, it is reasonable to assume that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027).

Proposed Mitigation

The applicant's engineer indicates that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that it's performance in the "with rezoning" scenario is better than the 2017 scenario without the rezoning. The engineer also calculates that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213: 1)The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027), and 2) The land use decision includes a condition requiring the applicant to contribute funding

to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection (Exhibit K).

The applicant has demonstrated that mitigation is readily available to offset the impact. The addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 is shown to substantially improve the performance of the intersection. Though a right-turn lane is not specifically identified in the TSP at this location, the addition of a right-turn lane where a collector or minor arterial intersects a major highway is a fairly common feature.

Mr. Replinger states that the needed mitigation may be considered a Transportation System Management measure that is supported by policies in the TSP, Oregon Highway Plan and Metro's RTP. At this particular location, the College's plans for development place no significant constraints on a modest expansion of right-of-way for Meyers Road in this quadrant.

Mr. Replinger concludes that the applicant has demonstrated that the improvements identified the system can, with modest mitigation, accommodate the proposed rezoning.

Therefore, Staff recommends that the Planning Commission apply the following Condition of Approval:

Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

The applicant can assure this standard is met through Compliance with Condition of Approval 4.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.

The applicant has addressed statewide planning goals in addition to the Goals and Policies of the Comprehensive Plan as outlined below.

Statewide Planning Goal 1: Citizen Involvement - OAR 660-015-0000(1)

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases ofthe planning process.

The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the on-going land-use

Planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues. Federal, state and regional agencies, and special- purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.

Finding: The applicant indicates that this application procedure allows for citizen involvement and communication throughout the entire process. Before this land use application was submitted an informational meeting was held with the Caufield Neighborhood Association and surrounding neighbors within 300 feet of the subject property. The submittal included a mailing list of these neighbors within 300 feet of the subject property and the Caufield Neighborhood Association Chairs so that the City could send notices of application and invitation to attend and/or participate in the public hearing held by the planning commission and the city commission. Finally, should this application be approved, a notice will be sent to all people of standing who participated in these public hearings giving them a final opportunity to appeal the decision if desired. **The statewide planning goal is met.**

Statewide Planning Goal 2: Land Use Planning - OAR 660-015-0000(2)

PART I -- PLANNING
To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and action.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request is being reviewed for consistency with all applicable City Code sections, the City Comprehensive Plan, Statewide Goals, Metro designations, etc. by the process of this Type IV decision which entails a quasi-judicial process with at least one public hearing by the planning commission and one public hearing by the city commission. The applicant has been prepared pursuant to the applicable Administration and Procedures codified in OCMC Chapter 17.50 and the process for Zone Changes and Plan Amendments in OCMC 17.68. **The statewide planning goal is met.**

Statewide Planning Goal 6: Air, Water And Land Resources Quality - OAR 660-015-0000(6)

To maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request will allow for the subject property to be designated with a City zone so that it may be developed in the future to the highest and best use. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone. All waste discharges from future development will be accommodated with a utility system

designed to City standards so as not to threaten or violate applicable state or federal environmental quality statutes, rules or standards. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. Water quality measures for storm water will be incorporated into final plans to meet or exceed the requirements of the City. **The statewide planning goal is met.**

Statewide Planning Goal 9: Economic Development - OAR 660-015-0000(9)

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens. Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements.

Finding: The applicant indicates that the Mixed Use Corridor District has been identified by the city to be designed along selected sections of specified transportation corridors including Beavercreek Road. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. The permitted uses offer a wide variety of potential to increase the economic growth and provide facilities to support current markets. The allowed uses in an MUC-1 zone will help contribute to the goals of providing a stable and healthy economy with potential employment opportunities and/or alternative housing options to the typical single family home. **The statewide planning goal is met.**

Statewide Goal 10: Housing - OAR 660-015-0000(10)

To provide for the housing needs of citizens of the state.
Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Finding: The applicant indicates that MUC-1 zone allows for multi-family housing and assisted living facilities which would contribute a more varied housing option to the overall housing inventory of the City. **The statewide goal is met.**

Statewide Goal 11: Public Facilities and Services - OAR 660-015-0000(11)

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a frameworkfor urban and rural development.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Public facilities are presently capable of supporting any of the uses

allowed within an MUC-1 zone. All services are available at the site and have capacity and framework to serve the urbanization of this property and the adjacent rural areas. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. The future development of this site, once the City zone and comprehensive plan designation are set, will allow for timely, orderly and efficient use of public services. **The statewide goal is met.**

Statewide Goal 12: Transportation - OAR 660-015-0000(12)

To provide and encourage a safe, convenient and economic transportation system.
A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor. The applicant's traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. Tri-met currently serves Clackamas Community College with bus service via Molalla Ave, Highway 213, and Beavercreek Road. No service is currently provided to this site, but with development and the adjacent Oregon City High School extension of service is planned. Bus service has direct connections to light rail at Clackamas Town Center with connections to the City of Portland, Gresham, Hillsboro and the Airport. The Beavercreek Road cross section includes bicycle lanes together adjacent to the vehicle lanes. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone. Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).

The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements,

and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from FU-10 to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The statewide goal is met.**

Statewide Goal 14: Urbanization - OAR 660-015-0000(14)

To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Finding: the applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use. **The statewide goal is met.**

COMPLIANCE WITH METRO URBAN GROWTH FUNCTIONAL PLAN (TITLES 1 AND 7)

Findings regarding compliance with Title 1 of the UGFMP - *Requirements for Housing and Employment Accommodation*, and Title 7 – *Housing Choice*, are provided in Exhibit M.

CONCURRENCE WITH THE BEAVERCREEK ROAD CONCEPT PLAN

The subject property was included as part of the Beavercreek Road Concept Plan, which was appealed to LUBA and which was remanded to Metro and the City of Oregon City. Therefore, findings regarding concurrence with the Beavercreek Road Concept Plan are informational only and have been provided in Exhibit L. They should not be considered approval criteria that must be satisfied in order to approve this the Zone Change and Comprehensive Plan Amendment.

According to the Beavercreek Road Concept Plan, the area proposed for plan amendment and re-zoning falls within the "Mixed Employment Village" – MEV plan designation:

"The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and

Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area."

IV. CONCLUSION AND RECOMMENDATION:

Based on the findings in this Staff Report, the Community Development Director has determined that the applicant has met, or can meet with the recommended Conditions of Approval, the applicable requirements in the Oregon City Municipal Code for approval of the proposed application.

Therefore, the Community Development Director recommends that the Planning Commission recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing, for the Application identified as Planning Files PZ 10-1 and ZC 10-01, for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for the property located at 19896 Beavercreek Road and identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

V. EXHIBITS

The following exhibits are attached to this staff report.

A. Applicant's Land Use Application Packet
   1. City of Oregon City Land Use Application form & list of permit approvals sought
   2. Preliminary title report with legal description
   3. Land Use Narrative
   4. Pre-application Conference Summary
   5. Neighborhood Contact information
   6. Tax Map, Site Map, Comprehensive Plan Map, Beavercreek Road Concept Plan Map
   7. APPENDIX
   8. Traffic Report – *(See B – Exhibit Below)*
   9. Beavercreek Road Concept Plan
   10. Supporting emails, correspondence, annexation agreement
   11. Exhibit Drawings (full sized) – **On File**

B. Transportation Planning Rule Analysis, dated June 21, 2010, prepared by Joe Bessman, PE, PTOE, Senior Engineer, and Chris Bremer, PE, Principal Engineer, Kittelson and Associates, Inc.

C. City Transportation Engineers Review of the Applicant's Transportation Planning Rule Analysis, dated August 9, 2010, prepared by John Replinger, PE, Replinger and Associates.

D. ODOT Comments on Rezoning, dated August 17, 2010, prepared by Gail Curtis, AICP, Senior Planner

E. ODOT Comments on TPR Analysis, dated August 12, 2010, prepared by Avi Tayar, PE, Development Review Team Leader, Region 1 Traffic.

F. Comments of Caufield Neighborhood Association, prepared by Mike Mermelstein (received August 13, 2010).

G. Police Services Development Agreement, Planning File AN 07-01.

H. Resolution 09-02, A Resolution Repealing Resolution 97-56, Adopting A Methodology, Project Lists, And Amounts For The City's Transportation System Development Charge And Establishing Effective Dates, adopted April 1, 2009.

I. Metro Comments, Email, May 1, 2007, regarding waiver of Title 11 compliance.

J. Metro Comments, Regarding the re-zoning proposal.

K. Notice of Decision and Conditions of Approval for Clackamas Community College Master Plan, Planning File CP 07-01, issued June 24, 2008.

L. Concurrence with the Beavercreek Road Concept Plan (For Information purposes only, not approval criteria)

M. Findings for Compliance with the Metro Urban Growth Functional Management Plan *Title 1 - Requirements for Housing and Employment Accommodation,* and *Title 7 – Housing Choice*.

N. Excerpt – 2009 Transportation System Development Charge Study with Cost Estimates for Project R-98 – Meyers Road Extension: Highway 213 to High School Lane.

RECOMMENDED CONDITIONS OF APPROVAL
Planning Files: PZ 10-01 / ZC 10-01
Planning Commission Hearing Date: August 30, 2010

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.

2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.

3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.

4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

Theta, llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

PREFACE

The enclosed materials represent a complete application for a zone change and comprehensive plan amendment for the property located at 19896 Beavercreek Road, Oregon City (3 2E 10C 00800)

The purpose of this application is to change the zone of the subject property which was annexed into the City of Oregon City in 2007, from future urban (FU) to Mixed Use Corridor District (MUC-1)

No development is proposed at this time.

The property is 9.59 acres, triangular in shape with slopes not exceeding 5%, and opposite the signalized intersection of Beavercreek Road and Meyers Road. All the necessary utilities are available at the site. The property is not in a Historic District, not in the Willamette Greenway, does not have any Geologic Hazards, and is not in Natural Reserve Overlay District or in a floodplain.

Table of Contents

1. City of Oregon City Land Use Application form & list of permit approvals sought
2. Preliminary title report with legal description
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4. Pre-application Conference Summary
5. Neighborhood Contact information
6. Tax Map, Site Map, Comprehensive Plan Map, Beavercreek Road Concept Plan Map

APENDIX

7. Traffic Report
8. Beavercreek Rod Concept Plan (attachment A, Exhibit 2)
9. Supporting emails, correspondence, annexation agreement
10. Exhibit Drawing (full sized)

CITY OF OREGON CITY
LAND USE APPLICATION

City of Oregon City, Community Development Department, 221 Molalla Ave., Ste. 200, P.O. Box 3040, Oregon City, OR 97045, (503) 722-3789

Type I (OCMC 17.50.030.A)	Type II (OCMC 17.50.030.B)	Type III / IV (OCMC 17.50.030.C)
☐ Compatibility Review	☐ Extension	☐ Annexation
☐ Nonconforming Use review	☐ Detailed Development Review	☐ Code Interpretation / Similar Use
☐ Water Resources Exemption	☐ Geotechnical Hazards	☐ Concept Development Plan
	☐ Minor Partition	☐ Conditional Use
	☐ Minor Site Plan & Design Review	☒ Comprehensive Plan Amendment (Text/Map)
	☐ Nonconforming Use Review	☐ Detailed Development Plan
	☐ Site Plan and Design Review	☐ Historic Review
	☐ Subdivision	☐ Oregon City Municipal Code Amendment
	☐ Minor Variance	☐ Variance
	☐ Water Resource Review	☒ Zone Change

Application Number: _____

Proposed Land Use or Activity: Zone change from FU to MUC-1 and Comp. Plan Amendment to MUC.

Project Name: — Number of Lots Proposed (If Applicable): N/A

Physical Address of Site: 19896 Beavercreek Road, Oregon City, OR 97045

Clackamas County Map and Tax Lot Number(s): 3-2E-10C TL 800

Applicant(s):
Applicant(s) Signature: _____
Applicant(s) Name Printed: Bruce Goldson, PE - Theta, LLC Date: 11/11/09'
Mailing Address: P.O. Box 1345 Lake Oswego, OR 97035
Phone: (503) 481-8822 Fax: — Email: thetaeng@comcast.net

Property Owner(s):
Property Owner(s) Signature: _____
Property Owner(s) Name Printed: Maywood, LLC Date: JANUARY 5, 2010
Mailing Address: 7128 SW Gonzaga Street, #300 Portland, OR 97223
Phone: (503) 620-2047 Fax: (503) 620-2287 Email: _____

Representative(s):
Representative(s) Signature: _____
Representative (s) Name Printed: Bruce Goldson, PE - Theta, LLC Date: 11/11/09'
Mailing Address: P.O. Box 1345 Lake Oswego, OR 97035
Phone: (503) 481-8822 Fax: — Email: thetaeng@comcast.net

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

www.orcity.org

Chicago Title Insurance Company of Oregon
PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein Chicago Title Insurance Company of Oregon hereby reports that it is prepared to issue, or cause to be issued, as of the specified date, a policy or policies of title insurance describing the land and the estate or interest hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.

The printed Exceptions and Exclusions from the coverage of said policy or policies are set forth in Exhibit A. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Chicago Title Insurance Company of Oregon, a/an Oregon corporation.

Please read the exceptions shown or referred to herein and the Exceptions and Exclusions set forth in Exhibit A of this report carefully. The Exceptions and Exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

This preliminary report is for the exclusive use of the parties to the contemplated transaction, and the Company does not have any liability to any third parties nor any liability until the full premium is paid and a policy is issued. Until all necessary documents are placed of record, the Company reserves the right to amend or supplement this preliminary report.

Countersigned

Marie Kinkade

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Chicago Title Insurance Company of Oregon
8585 SW Cascade Avenue, Suite 200, Beaverton, OR 97008
FAX

PRELIMINARY REPORT

TITLE OFFICER: Mihyun Steinberg

ORDER NO.: 472509475706TO-CTOR
CUSTOMER NO.:

TO: Chicago Title Insurance Company of Oregon
Attn: Bill McCorkle/Builder Services
10135 SE Sunnyside Rd., Ste 200
Clackamas, OR 97015

OWNER/SELLER: Marylwood LLC

BUYER/BORROWER:

PROPERTY ADDRESS: 19896 Beavercreek Road
Oregon City, Oregon 97045

EFFECTIVE DATE: November 18, 2009, 08:00 AM

1. THE POLICY AND ENDORSEMENTS TO BE ISSUED AND THE RELATED CHARGES ARE:

	AMOUNT	PREMIUM
Governmental Service Fee		$ 25.00

2. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:
   A Fee
3. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:
   Marylwood LLC, an Oregon limited liability company
4. THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE CITY OF OREGON CITY IN THE COUNTY OF CLACKAMAS, STATE OF OREGON, AND IS DESCRIBED AS FOLLOWS:
   SEE EXHIBIT "ONE" ATTACHED HERETO AND MADE A PART HEREOF

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PRELIMINARY REPORT
(Continued)

Order No.: 472509475706TO-CTOR

EXHIBIT "ONE"

A tract located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0° 30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89° 35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89° 36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40° 37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89° 35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0° 30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, and being a part of the tract described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

EXCEPTING THEREFROM a tract in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89° 35' West 3.76 feet; thence South 89° 35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83° 52' 30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40° 35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0° 30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89° 35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0° 0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89° 35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0° 30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

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AS OF THE DATE OF THIS REPORT, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN THE POLICY FORM WOULD BE AS FOLLOWS:

GENERAL EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.

3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.

5. Any lien for services, labor or material heretofore or hereafter furnished, or for contributions due to the State of Oregon for unemployment compensation or worker's compensation, imposed by law and not shown by the Public Records.

SPECIFIC ITEMS AND EXCEPTIONS:

6. City Liens, if any, in favor of the City of Oregon City.

7. The premises herein described are within and subject to the statutory power including the power of assessment of the Clackamas River Water District .

8. The rights of the public in and to that portion of the premises herein described lying within the limits of S. Beavercreek Road.

9. An easement created by instrument, including terms and provisions thereof;

   In favor of: Pacific Northwest Pipeline Corporation
   Dated:October 10, 1959
   Recorded: October 16, 1959
   Book:562 Page:506
   For: Right to construct and maintain pipeline
   Affects: undefined location (shown on tax map)

10. Trust Deed, including the terms and provisions thereof, given to secure an indebtedness with interest thereon and such future advances as may be provided therein;

    Amount:$1,476,860.00
    Dated:March 13, 2006
    Grantor:Marylwood LLC, an Oregon limited liability company
    Trustee:Chicago Title Insurance Company of Oregon
    Beneficiary:Sterling Savings Bank

Recorded:March 23, 2006
Recorder's Fee No.: 2006-025533
Loan No.: 151113463

11. Annexation Agreement, including the terms and provisions thereof

Recording Date: March 28, 2008
Recording No.: 2008-022108

12. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: March 28, 2008
Recording No: 2008-022111

13. A copy of the terms and provisions of the operating agreement for the limited liability company set forth below should be furnished for our examination prior to closing. Any conveyance or encumbrance of said company's property must be executed by all of the members unless otherwise provided for in the operating agreement. In addition, if there have been any changes in membership from the date of original creation of the limited liability company to the present date, copies of approval of withdrawal and/or acceptance of such member should be furnished for our examination.

Limited Liability Company: Marylwood LLC

ADDITIONAL REQUIREMENTS/NOTES:

A. Note: Property taxes for the fiscal year shown below are paid in full.

Fiscal Year: 2009-10
Amount: $3,730.10
Account No.: 00870711, 32E10C -00800, CODE 062-092

B. In addition to the standard policy exceptions, the exceptions enumerated above shall appear on the final 2006 ALTA policy unless removed prior to issuance.

C. NOTE: No search has been made or will be made for water, sewer, or storm drainage charges unless the city/service district claims them as liens (i.e., foreclosable) and reflects them on its lien docket at the date of closing. Buyers should check with the appropriate city bureau or water/service district and obtain a billing cutoff. Such charges must be adjusted outside of escrow.

D. Note: There are NO conveyances affecting said Land recorded within 24 months of the date of this report.

E. Note: There are no matters against the party(ies) shown below which would appear as exceptions to coverage in a title insurance product:

Parties: Marylwood LLC

F. Recording charge for a RESPA transaction (all transfer and loan documents):
RESPA Residential Sale and Purchase $151.00

RESPA Residential Loan/Refinance $125.00
RECORDING CHARGES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

G. Note: Effective January 1, 2008, Chapter 864, Oregon Laws 2007 mandates withholding of Oregon income taxes from sellers who do not continue to be Oregon residents or qualify for an exemption. Please contact your Escrow Closer for further information.

H. THE FOLLOWING NOTICE IS REQUIRED BY STATE LAW; YOU WILL BE REVIEWING, APPROVING AND SIGNING IMPORTANT DOCUMENTS AT CLOSING. LEGAL CONSEQUENCES FOLLOW FROM THE SELECTION AND USE OF THESE DOCUMENTS. YOU MAY CONSULT AN ATTORNEY ABOUT THESE DOCUMENTS. YOU SHOULD CONSULT AN ATTORNEY IF YOU HAVE QUESTIONS OR CONCERNS ABOUT THE TRANSACTION OR ABOUT THE DOCUMENTS. IF YOU WISH TO REVIEW TRANSACTION DOCUMENTS THAT YOU HAVE NOT SEEN, PLEASE CONTACT THE ESCROW AGENT.

Effective Date: 5/1/2008

Fidelity National Financial, Inc.

Privacy Statement

Fidelity National Financial, Inc. and its subsidiaries ("FNF") respect the privacy and security of your non-public personal information ("Personal Information") and protecting your Personal Information is one of our top priorities. This Privacy Statement explains FNF's privacy practices, including how we use the Personal Information we receive from you and from other specified sources, and to whom it may be disclosed. FNF follows the privacy practices described in this Privacy Statement and, depending on the business performed, FNF companies may share information as described herein.

Personal Information Collected

We may collect Personal Information about you from the following sources:

- Information we receive from you on applications or other forms, such as your name, address, social security number, tax identification number, asset information, and income information;
- Information we receive from you through our Internet websites, such as your name, address, email address, Internet Protocol address, the website links you used to get to our websites, and your activity while using or reviewing our websites;
- Information about your transactions with or services performed by us, our affiliates, or others, such as information concerning your policy, premiums, payment history, information about your home or other real property, information from lenders and other third parties involved in such transaction, account balances, and credit card information; and
- Information we receive from consumer or other reporting agencies and publicly recorded documents.

Disclosure of Personal Information

We may provide your Personal Information (excluding information we receive from consumer or other credit reporting agencies) to various individuals and companies, as permitted by law, without obtaining your prior authorization. Such laws do not allow consumers to restrict these disclosures. Disclosures may include, without limitation, the following:

- To insurance agents, brokers, representatives, support organizations, or others to provide you with services you have requested, and to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure in connection with an insurance transaction;
- To third-party contractors or service providers for the purpose of determining your eligibility for an insurance benefit or payment and/or providing you with services you have requested;
- To an insurance regulatory authority, or a law enforcement or other governmental authority, in a civil action, in connection with a subpoena or a governmental investigation;
- To companies that perform marketing services on our behalf or to other financial institutions with which we have joint marketing agreements and/or
- To lenders, lien holders, judgment credits, or other parties claiming an encumbrance or an interest in title whose claim or interest must be determined, settled, paid or released prior to a title or escrow closing.

We may also disclose your Personal Information to others when we believe, in good faith, that such disclosure is reasonably necessary to comply with the law or to protect the safety of our customers, employees, or property and/or to comply with the judicial proceeding, court order or legal process.

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Disclosure to Affiliated Companies

We are permitted by law to share your name, address and facts about your transaction with other FNF companies, such as insurance companies, agents, and other real estate service providers to provide you with services you have requested, for marketing or product development research, or to market products or services to you. We do not, however, disclose information we collect from consumer or credit reporting agencies with our affiliates or others without your consent, in conformity with applicable law, unless such disclosure is otherwise permitted by law.

Disclosure to Nonaffiliated Third Parties

We do not disclosure Personal Information about our customers or former customers to nonaffiliated third parties, except as outlined herein or as otherwise permitted by law.

Confidentiality and Security of Personal Information

We restrict access to Personal Information about you to those employees who need to know that information to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard Personal Information.

Access to Personal Information/
Requests for Correction, Amendment, or Deletion of Personal Information

As required by applicable law, we will afford you the right to access your Personal Information, under certain circumstances to find out to whom your Personal Information has been disclosed, and request correction or deletion of your Personal Information.

However, FNF's current policy is to maintain customers' Personal Information for no less than your state's required record retention requirements for the purpose of handling future coverage claims.

For your protection, all requests made under this section must be in writing and must include your notarized signature to establish your identity.

Where permitted by law, we may charge a reasonable fee to cover the costs incurred in respond to such requests. Please send requests to:

Chief Privacy Officer
Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, FL 32204

Changes to this Privacy Statement

This Privacy Statement may be amended from time to time consistent with applicable privacy laws. When we amend this Privacy Statement, we will post a notice of such changes on our website. The effective date of this Privacy Statement, as stated above, indicates the last time this Privacy Statement was revised or materially changed.

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19896 Beavercreek Road, Oregon City (T3S-R2E-10C tax lot 800)
Proposed Zone Change and Comprehensive Plan Amendment Application
December 2009

Project Summary

The subject property is located at 19896 Beavercreek Road in Oregon City, also known as T3S-R2E-10C tax lot 800. The property is 9.59 acres in size, triangular in shape and is relatively flat with slopes not exceeding 5% (running SE to NW).

The subject property is surrounded by undeveloped land to the north, northeast and southeast, which is part of the Beavercreek Road Concept Plan and was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. Carrington Place, an existing residential subdivision zoned R-6, and existing single family residential lots zoned R3.5 and R-10 are all to the southwest. Oregon City High School is to the northwest. A 50 foot wide Williams Natural gas pipeline corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area except for parking/maneuvering, open space and/or setbacks. The signalized intersection of Meyers and Beavercreek Road is located along the subject property frontage.

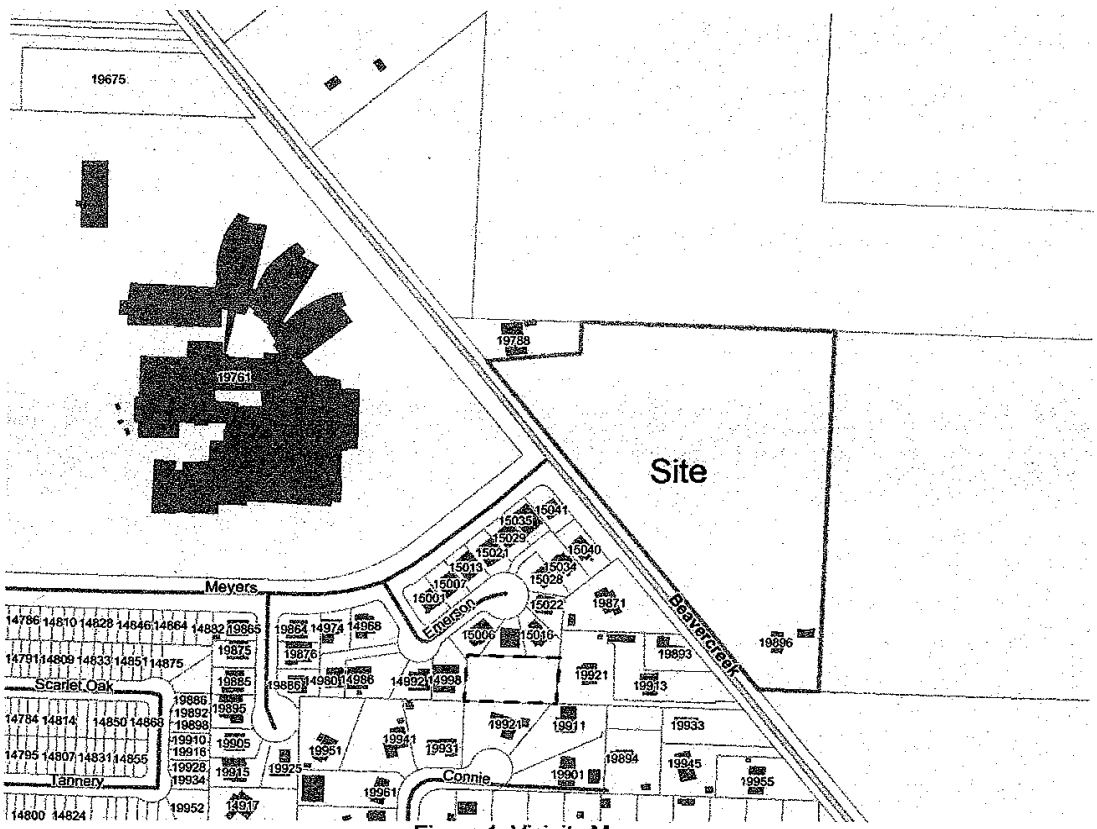


Figure 1: Vicinity Map

The property is predominately undeveloped land with one (1) residential home and one (1) barn on site. There is public water available to the site from a currently existing 12-inch line in Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court can be extended to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.

The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Upon annexation into the City it was assigned a holding zone under Clackamas County designation of Future Urban (FU). The current Comprehensive Plan designation is also Future Urban (FU). There are no historic sites or overlay districts on the property.

At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City and the Beavercreek Road Concept Plan.

The pre-application meeting was held on November 10, 2009. The Caufield Neighborhood Association was contacted via letter (certified mail and return receipt requested) and email to request a meeting to discuss the project.

Oregon City Code 17.50 – Administrative Processes

17.50.030 Permit approval process

17.50.030 Summary of the city's decision-making processes.
The following decision-making processes chart shall control the City's review of the indicated permits:

Table 17.50.030
PERMIT APPROVAL PROCESS

TABLE INSET:

PERMIT TYPE	*I*	*II*	*III*	*IV*	*Expedited Land Division*
Compatibility Review	*X*				
Code Interpretation			*X*		
General Development Plan			*X*		
Conditional Use			*X*		

Detailed Development Plan 1		X	X		
Extension		X			
Final Plat	X				
Geologic Hazards		X			
Historic Review			X		
Lot Line Adjustment and Abandonment	X				
Major Modification to a Prior Approval 2	X	X	X	X	X
Minor Modification to a prior Approval	X				
Minor Partition		X			
Nonconforming Use, Structure and Lots Review	X	X			
Reconsideration	X				
Revocation				X	
Site Plan and Design Review		X			
Subdivision		X			X
Variance		X	X		
Zone Change & Plan Amendment				X	
Zone Change Upon Annexation with No Discretion	X			X	
Zone Change Upon Annexation with Discretion				X	
Natural Resource Exemption	X				
Natural Resource Review		X			

Notes:

1 If any provision or element of the master plan requires a deferred Type III procedure, the detailed development plan shall be processed through a Type III procedure.

2 A major modification to a prior approval shall be considered using the same process as would be applicable to the initial approval.

A. Type I decisions do not require interpretation or the exercise of policy or legal judgment in evaluating approval criteria. Because no discretion is involved, Type I decisions do not qualify as a land use, or limited land use, decision. The decision-making process requires no notice to any party other than the applicant. The community development director's decision is final and not appealable by any party through the normal city land use process.

B. Type II decisions involve the exercise of limited interpretation and discretion in evaluating approval criteria, similar to the limited land use decision-making process under state law. Applications evaluated through this process are assumed to be allowable in the underlying zone, and the inquiry typically focuses on what form the use will take or how it will look. Notice of application and an invitation to comment is mailed to the applicant, recognized active neighborhood association(s) and property owners within three hundred feet. The community development director accepts comments for a minimum of fourteen days and renders a decision. The community development director's decision is appealable to the city commission with notice to the planning commission, by any party with standing (i.e., applicant and any party who submitted comments during the comment period). The city commission decision is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.

C. Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association(s) and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

D. Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and planning commission hearing is published and mailed to the applicant, recognized neighborhood association(s) and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing within the comment period) may appeal

the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. the city commission decision is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.
E. The expedited land division (ELD) process is set forth in ORS 197.360 to 197.380. To qualify for this type of process, the development must meet the basic criteria in ORS 197.360(1)(a) or (b). While the decision-making process is controlled by state law, the approval criteria are found in this Code. The community development director has twenty-one days within which to determine whether an application is complete. Once deemed complete, the community development director has sixty-three days within which to issue a decision. Notice of application and opportunity to comment is mailed to the applicant, recognized neighborhood association and property owners within one hundred feet of the subject site. The community development director will accept written comments on the application for fourteen days and then issues a decision. State law prohibits a hearing. Any party who submitted comments may call for an appeal of the community development director's decision before a hearings referee. The referee need not hold a hearing; the only requirement is that the determination be based on the evidentiary record established by the community development director and that the process be "fair." The referee applies the city's approval standards, and has forty-two days within which to issue a decision on the appeal. The referee is charged with the general objective to identify means by which the application can satisfy the applicable requirements without reducing density. The referee's decision is appealable only to the court of appeals pursuant to ORS 197.375(8) and 36.355(1).

Response: The property owner proposes to combine the proposed zone change and comprehensive plan amendment under one submittal. This will be a Type IV decision.

17.50.040 Development Review in Overlay Districts and for Erosion Control
17.50.040 Development review in overlay districts and for erosion control.
For any development subject to regulation of geologic hazards under city Code Chapter 17.44; Natural Resource under Chapter 17.49; Willamette River Greenway under Chapter 17.48; and erosion control under Chapter 17.47, compliance with the requirements of these chapters shall be reviewed as part of the review process required for the underlying development for the site.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The subject property is not in any overlay districts and is not within a geologic hazard area. The property is relatively flat with no slopes over 5%. Therefore, this section is not applicable.

17.50.050 Pre-Application Conference and Neighborhood Meeting
17.50.050 Preapplication conference and neighborhood meeting.

A. Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents. Conditional use, subdivision, or site plan and design review (excluding minor site plan and design review) applications shall schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended. The applicant shall send, by certified mail, return receipt requested, a letter to the chairperson of the neighborhood association and the citizen involvement committee describing the proposed project. A meeting shall be scheduled within thirty days of the notice. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall hold their own meeting after six p.m. or on the weekend, with notice to the neighborhood association, citizen involvement committee, and all property owners within three hundred feet. If the applicant holds their own meeting, a copy of the certified letter shall be required for a complete application. The meeting shall be held within the boundaries of the neighborhood association or in a city facility.

Response: The Caufield Neighborhood Association was contacted on November 10, 2009 via letter (certified mail and return receipt requested) and email to request a meeting to discuss the project. The project engineer attended the Neighborhood Association Board Meeting on _____. At that time he was informed that we would not be able to get on their schedule until January 2010.

B. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this Code, and any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

Response: The pre-application meeting was held on November 10, 2009 at the City of Oregon City. Notes from this meeting are included in the application submittal.

C. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the

applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the director's opinion, the development does not warrant this step.

Response: The pre-application meeting was held on November 10, 2009 at the City of Oregon City. Notes from this meeting are included in the application submittal. The owner/applicant understands that the meeting is valid for six months.

17.50.060 Application Requirements

17.50.060 Application requirements.

A permit application may only be initiated by the record property owner or contract purchaser, the city commission or planning commission. If there is more than one record owner, then the city will not accept an application without signed authorization from all record owners. All permit applications must be submitted on the form provided by the city, along with the appropriate fee and all necessary supporting documentation and information, sufficient to demonstrate compliance with all applicable approval criteria. The applicant has the burden of demonstrating, with evidence, that all applicable approval criteria are, or can be, met.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This submittal includes the application form signed by the property owner, and the appropriate fee and supporting documentation as outlined at the pre-application meeting.

17.50.070 Completeness Review and 120-day Rule

17.50.070 Completeness review and one hundred twenty-day rule.

A. Upon submission, the community development director shall date stamp the application form and verify that the appropriate application fee has been submitted. The community development director will then review the application and all information submitted with it and evaluate whether the application is complete enough to process. Within thirty days of receipt of the application, the community development director shall complete this initial review and issue to the applicant a written statement indicating whether the application is complete enough to process, and if not, what information must be submitted to make the application complete.

Response: The property owner/applicant understands that there will be a 30 day completeness review period upon submittal of the application.

B. The applicant has one hundred eighty days from the date the application was made to submit the missing information or, on the one hundred eighty-first-day, the application shall be rejected and all materials (except one copy of the application) and the unused portion of the application fee returned to the applicant. If the applicant submits the requested information within the one hundred eighty-day period, the community development director shall again verify whether the application, as augmented, is complete. Each such review and verification shall follow the procedure in subsection A. of this section.

The application will be deemed complete for the purpose of this section upon receipt by the community development division of:

1. All the missing information;
2. Some of the missing information and written notice from the applicant that no other information will be provided; or
3. Written notice from the applicant that none of the missing information will be provided.

Response. The owner/applicant understands that they will be given 180 days to submit required materials should the application be deemed incomplete.

C. Once the community development director determines the application is complete enough to process, or the applicant refuses to submit any more information, the city shall declare the application complete. Pursuant to ORS 227.178, the city will reach a final decision on an application within one hundred twenty calendar days from the date that the application is determined to be or deemed complete unless the applicant agrees to suspend the one hundred twenty calendar day time line or unless State law provides otherwise. The one hundred twenty-day period, however, does not apply in the following situations:

1. Any hearing continuance or other process delay requested by the applicant shall be deemed an extension or waiver, as appropriate, of the one hundred twenty-day period.
2. Any delay in the decision-making process necessitated because the applicant provided an incomplete set of mailing labels for the record property owners within three hundred feet of the subject property shall extend the one hundred twenty-day period for the amount of time required to correct the notice defect.
3. The one hundred twenty-day period does not apply to any application for a permit that is not wholly within the city's authority and control.
4. The one hundred twenty-day period does not apply to any application for an amendment to the city's comprehensive plan or land use regulations nor to any application for a permit, the approval of which depends upon a plan amendment.

Response: Since this application includes a request for a comprehensive plan amendment, the owner/applicant understands that the 120 day final decision period does not apply.

D. The one hundred twenty-day period specified in Section 17.50.070C. may be extended for a specified period of time at the written request of the applicant. The total of all extensions may not exceed two hundred forty-five calendar days.

Response: Since this application includes a request for a comprehensive plan amendment, the owner/applicant understands that the 120 day final decision period does not apply and will be extended as outlined above.

E. The approval standards that control the city's review and decision on a complete application are those which were in effect on the date the application was first submitted. (Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the Code that applies is the one that is in effect when this application is submitted.

17.50.080 Complete Application – Required Information

17.50.080 Complete application--Required information.

Unless stated elsewhere in City Code Titles 16 or 17, a complete application includes all the materials listed in this subsection. The community development director may waive the submission of any of these materials if not deemed to be applicable to the specific review sought. Likewise, within thirty days of when the application is first submitted, the community development director may require additional information, beyond that listed in this subsection or elsewhere in Titles 16 or 17, such as a traffic study or other report prepared by an appropriate expert. In any event, the applicant is responsible for the completeness and accuracy of the application and all of the supporting documentation, and the city will not deem the application complete until all information required by the community development director is submitted. At a minimum, the applicant must submit the following:

A. One copy of a completed city application form that includes the following information:

1. An accurate legal description, tax account number(s), map and location of all properties that are the subject of the application,

2. Name, address, telephone number and authorization signature of all record property owners or contract owners, and the name, address and telephone number of the applicant, if different from the property owner(s);

Response. A complete City application form has been filled out and included with this application submittal.

B. A complete list of the permit approvals sought by the applicant;

Response: The owner/applicant proposes a zone change from FU to MUC-1 and a Comprehensive Plan Amendment from FU to MUC.

C. A current preliminary title report for the subject property(ies);

Response: A preliminary title report has been included in the application submittal.

D. A complete and detailed narrative description of the proposed development that describes existing site conditions, existing buildings, public facilities and services, presence of wetlands, steep slopes and other natural features, a discussion of the approval criteria for all permits required for approval of the development proposal that explains how the criteria are or can be met, and any other information indicated by staff at the preapplication conference as being required;

Response: At this time there is no proposed development.This narrative has been prepared to address the applicable Code sections

E. Up to twenty-one legible copies of all reports, plans, site plans and other documents required by the section of this Code corresponding to the specific approval(s) sought;

Response: As requested at the pre-application meeting, twenty-one (21) copies of the application packet are being submitted.

F. At least one copy of the site plan and all related drawings shall be in a readable/legible eight and one-half by eleven inch format for inclusion into the city's bound record of the application;

Response: One (1) 8 ½ x11 plan set has been included in the application submittal.

G. Mailing labels for notice to all parties entitled under Section 17.50.090 to receive mailed notice of the application. The applicant shall use the names and addresses of property owners within the notice area indicated on the most recent property tax rolls;

Response: Mailing address labels have been included with the application submittal.

H. All required application fees;

Response: All indicated fees have been included with the application submittal.

I. Annexation agreements (if applicable);

Response: A copy of the 2008 annexation agreement has been included in the application submittal.

J. Additional documentation as needed by the community development director.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: A traffic report has been prepared by Kittelson & Associates, Inc. and reviewed by John Replinger & Associates LLC and is included in the application submittal. A copy of the report is attached as exhibit A.

17.50.090 Public Notices

17.50.090 Public notices.

All public notices issued by the city with regard to a land use matter, announcing applications or public hearings of quasi-judicial or legislative actions, shall comply with the requirements of this section.

A. Notice of Type II Applications. Once the planning manager has deemed a Type II application complete, the city shall prepare and send notice of the application, by first class mail, to all record owners of property within three hundred feet of the subject property and to any city-recognized neighborhood association whose territory includes the subject property. Pursuant to Section 17.50.080H., the applicant is responsible for providing an accurate and complete set of mailing labels for these property owners and for posting the subject property with the city-prepared notice in accordance with Section 17.50.100. The city's Type II notice shall include the following information:

1. Street address or other easily understood location of the subject property and city-assigned planning file number;
2. A description of the applicant's proposal, along with citations of the approval criteria that the city will use to evaluate the proposal;
3. A statement that any interested party may submit to the city written comments on the application during a fourteen-day comment period prior to the city's deciding the application, along with instructions on where to send the comments and the deadline of, the fourteen-day comment period;
4. A statement that any issue which is intended to provide a basis for an appeal must be raised in writing during the fourteen-day comment period with sufficient specificity to enable the city to respond to the issue;
5. A statement that the application and all supporting materials may be inspected, and copied at cost, at city hall during normal business hours;
6. The name and telephone number of the planning staff person assigned to the application or is otherwise available to answer questions about the application.
7. The notice shall state that a city-recognized neighborhood association requesting an appeal fee waiver pursuant to Section 17.50.290C. must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

Response: This is a Type IV application decision.

B. Notice of Public Hearing on a Type III or IV Quasi-Judicial Application. Notice for all public hearings concerning a quasi-judicial application shall conform to the requirements of this subsection. At least twenty days prior to the hearing, the city shall prepare and send, by first class mail, notice of the hearing to all record owners of property within three hundred feet of the subject property and to any city-recognized neighborhood association whose territory includes the subject property. The city shall also publish the notice in a newspaper of general circulation within the city at least twenty days prior to the hearing. Pursuant to Section 17.50.080H., the applicant is responsible for providing an accurate and complete set of mailing labels for these property owners and for posting the subject property with the city-prepared notice in accordance with Section 17.50.100. Notice of the application hearing shall include the following information:

1. The time, date and location of the public hearing;
2. Street address or other easily understood location of the subject property and city-assigned planning file number;
3. A description of the applicant's proposal, along with a list of citations of the approval criteria that the city will use to evaluate the proposal;
4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing and that a staff report will be prepared and made available to the public at least seven days prior to the hearing;
5. A statement that any issue which is intended to provide a basis for an appeal to the city commission must be raised before the close of the public record. Issues

must be raised and accompanied by statements or evidence sufficient to afford the city and all parties to respond to the issue;

6. The notice shall state that a city-recognized neighborhood association requesting an appeal fee waiver pursuant to 17.50.290C. must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

7. A statement that the application and all supporting materials and evidence submitted in support of the application may be inspected at no charge and that copies may be obtained at reasonable cost at city hall during normal business hours; and

8. The name and telephone number of the planning staff person responsible for the application or is otherwise available to answer questions about the application.

Response: Mailing labels for property owners within 300 feet of the subject property and the Caufield Neighborhood Association Chairs have been included in the application submittal.

C. Notice of Public Hearing on a Legislative Proposal. At least twenty days prior to a public hearing at which a legislative proposal to amend or adopt the city's land use regulations or comprehensive plan is to be considered, the planning manager shall issue a public notice that conforms to the requirements of this subsection. Notice shall be sent to affected governmental entities, special districts, providers of urban services, including Tri-Met, Oregon Department of Transportation and Metro, any affected recognized neighborhood associations and any party who has requested in writing such notice. Notice shall also be published in a newspaper of general circulation within the city. Notice issued under this subsection shall include the following information:

1. The time, date and location of the public hearing;

2. The city-assigned planning file number and title of the proposal;

3. A description of the proposal in sufficient detail for people to determine the nature of the change being proposed;

4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing; and

5. The name and telephone number of the planning staff person responsible for the proposal and who interested people may contact for further information.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV application decision.

17.50.100 Notice Posting Requirements

17.50.100 Notice posting requirements.

Where this chapter requires notice of a pending or proposed permit application or hearing to be posted on the subject property, the requirements of this section shall apply.

A. City Guidance and the Applicant's Responsibility. The city shall supply all of the notices which the applicant is required to post on the subject property and shall specify the dates the notices are to be posted and the earliest date on which they may be removed. The city shall also provide a statement to be signed and returned by the applicant certifying that the notice(s) were posted at the correct

time and that if there is any delay in the city's land use process caused by the applicant's failure to correctly post the subject property for the required period of time and in the correct location, the applicant agrees to extend the one-hundred-twenty-day period in a timely manner.

Response: The owner/applicant understands that the City will provide all notices that need to be posted, and it will be the owner's/applicant's responsibility to post/remove in a timely manner.

B. Number and Location. The applicant must place the notices on each frontage of the subject property. If the property's frontage exceeds six hundred feet, the applicant shall post one copy of the notice for each six hundred feet or fraction thereof. Notices do not have to be posted adjacent to alleys or unconstructed right-of-way. Notices shall be posted within ten feet of the street and shall be visible to pedestrians and motorists. Notices shall not be posted within the public right-of-way or on trees. The applicant shall remove all signs within ten days following the event announced in the notice.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that one notice must be posted along the property frontage every 600 feet.

17.50.110 Assignment of Decision-Makers

17.50.110 Assignment of decision-makers.

The following city entity or official shall decide the following types of applications:

A. Type I Decisions. The community development director shall render all Type I decisions. The community development director's decision is the city's final decision on a Type I application.

B. Type II Decisions. The community development director shall render the city's decision on all Type II permit applications which are appealable to the city commission with notice to the planning commission. The city commission decision is appealable to LUBA.

C. Type III Decisions. The planning commission or historic review board, as applicable, shall render all Type III decisions. Such decision is appealable to the city commission, on the record. The city commission's decision is the City's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

D. Type IV Decisions. The planning commission shall render the initial decision on all Type IV permit applications. If the planning commission denies the Type IV application, that decision is final unless appealed to the city commission in accordance with Section 17.50.190. If the planning commission recommends approval of the application, that recommendation is forwarded to the city commission. The city commission decision is the city's final decision on a Type IV application and is appealable to LUBA.

E. ELD. The community development director shall render the initial decision on all ELD applications. The community development director's decision is the city's final decision unless appealed in accordance to ORS 197.375 to a city-appointed

hearings referee. The hearings referee decision is the city's final decision which is appealable to the Oregon Court of Appeals.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV decision, which means that the Planning Commission will render the recommendation decision and the City Commission will render the City's final decision.

17.50.120 Quasi-Judicial Hearing Process

17.50.120 Quasi-judicial hearing process.

All public hearings pertaining to quasi-judicial permits, whether before the planning commission, historic review board, or city commission, shall comply with the procedures of this section. In addition, all public hearings held pursuant to this chapter shall comply with the Oregon Public Meetings Law, the applicable provisions of ORS 197.763 and any other applicable law.

A. Once the community development director determines that an application for a Type III or IV decision is complete, the planning division shall schedule a hearing before the planning commission or historic review board, as applicable. Once the community development director determines that an appeal of a Type II, Type III or Type IV decision has been properly filed under Section 17.50.190, the planning division shall schedule a hearing before the city commission.

Response: The owner/applicant understands that this type IV decision will be heard by the planning commission at a hearing scheduled by the planning division.

B. Notice of the Type III or IV hearing shall be issued at least twenty days prior to the hearing in accordance with Section 17.50.090B.

Response: The owner/applicant understands that notice of a type IV hearing will be issued at least 21 days prior to the hearing date.

C. Written notice of an appeal hearing before the city commission shall be sent by regular mail no later than fourteen days prior to the date of the hearing to the appellant, the applicant if different from the appellant, the property owner(s) of the subject site, all persons who testified either orally or in writing before the hearing body and all persons that requested in writing to be notified.

Response: The owner/applicant understands that written notice of an appeal hearing before the City Commission will be sent by regular mail no later than 14 days prior to the date of the hearing.

D. The community development director shall prepare a staff report on the application which lists the applicable approval criteria, describes the application and the applicant's development proposal, summarizes all relevant city department, agency and public comments, describes all other pertinent facts as they relate to the application and the approval criteria and makes a recommendation as to whether each of the approval criteria are met.

Response: The owner/applicant understands that the Community Development Director will prepare a staff report on the application and make a recommendation as to whether each of the approval criteria has been met or not.

> *E. At the beginning of the initial public hearing at which any quasi-judicial application or appeal is reviewed, a statement describing the following shall be announced to those in attendance:*
>
> *1. That the hearing will proceed in the following general order: staff report, applicant's presentation, testimony in favor of the application, testimony in opposition to the application, rebuttal, record closes, commission deliberation and decision;*
>
> *2. That all testimony and evidence submitted, orally or in writing, must be directed toward the applicable approval criteria. If any person believes that other criteria apply in addition to those addressed in the staff report, those criteria must be listed and discussed on the record. The meeting chairperson may reasonably limit oral presentations in length or content depending upon time constraints. Any party may submit written materials of any length while the public record is open;*
>
> *3. Failure to raise an issue on the record with sufficient specificity and accompanied by statements or evidence sufficient to afford the city and all parties to respond to the issue, will preclude appeal on that issue to the state land use board of appeals;*
>
> *4. Any party wishing a continuance or to keep open the record must make that request while the record is still open; and*
>
> *5. That the commission chair shall call for any ex-parte contacts, conflicts of interest or bias before the beginning of each hearing item.*
>
> *6. For appeal hearings, only those persons who participated either orally or in writing in the decision or review will be allowed to participate either orally or in writing on the appeal.*

Response: The owner/applicant understands that the hearing process will be announced at the beginning of the initial public hearing.

> *F. Requests for continuance and to keep open the record: The hearing may be continued to allow the submission of additional information or for deliberation without additional information. New notice of a continued hearing need not be given so long as a time-certain and location is established for the continued hearing. Similarly, hearing may be closed but the record kept open for the submission of additional written material or other documents and exhibits. The chairperson may limit the factual and legal issues that may be addressed in any continued hearing or open-record period.*

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a request for a continuance can be made at the initial public hearing, or that the record may be kept open.

17.50.130 Conditions of Approval and Notice of Decision

17.50.130 Conditions of approval and notice of decision.

A. All city decision-makers have the authority to impose reasonable conditions of approval designed to ensure that all applicable approval standards are, or can be, met.

Response: The owner/applicant understands that reasonable conditions of approval can be imposed upon an application in order to ensure that all applicable standards are met.

B. Failure to comply with any condition of approval shall be grounds for revocation of the permit(s) and grounds for instituting code enforcement proceedings pursuant to Chapter 1.20 of this Code and ORS 30.315.

Response: The owner/applicant understands that failure to comply with any conditions of approval shall be grounds for revocation of the permit(s) and grounds for instituting code enforcement proceedings.

C. Notice of Decision. The city shall send, by first class mail, a notice of all decisions rendered under this chapter to all persons with standing, i.e., the applicant, all others who participated either orally or in writing before the close of the public record and those who specifically requested notice of the decision. The notice of decision shall include the following information:

1. *The file number and date of decision;*
2. *The name of the applicant, owner and appellant (if different);*
3. *The street address or other easily understood location of the subject property;*
4. *A brief summary of the decision, and if an approval, a description of the permit approved;*
5. *A statement that the decision is final unless appealed and description of the requirements for perfecting an appeal;*
6. *The contact person, address and a telephone number whereby a copy of the final decision may be inspected or copies obtained.*

Response: The owner/applicant understands that they will receive the notice of decision by first class mail.

D. Modification of Conditions. Any request to modify a condition of permit approval is to be considered either minor modification or a major modification. A minor modification shall be processed as a Type I. A major modification shall be processed in the same manner and shall be subject to the same standards as was the original application. However, the decision-maker may at their sole discretion, consider a modification request and limit its review of the approval criteria to those issues or aspects of the application that are proposed to be changed from what was originally approved.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a modification of conditions can be requested and will be processed as a major or minor modification application.

17.50.140 Performance Guarantee

17.50.140 Performance guarantees.

When conditions of permit approval require a permittee to construct certain improvements, the city may, in its discretion, allow the permitee to submit a performance guarantee in lieu of actual construction of the improvement. Performance guarantees shall be governed by this section.

A. Form of Guarantee. Performance guarantees shall be in a form approved by the city attorney Approvable methods of performance guarantee include irrevocable standby letters of credit to the benefit of the city issued by a recognized lending institution, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the city. The form of guarantee shall be specified by the city engineer and, prior to execution and acceptance by the city shall be reviewed and approved by the city attorney. The guarantee shall be filed with the city engineer.

Response: The owner/applicant understands that a performance guarantee may be allowed in lieu of actual construction of specific improvements as approved by the City Attorney.

B. Timing of Guarantee. A permittee shall be required to provide a performance guarantee as follows.

1. After Final Approved Design by the City: A permittee may request the option of submitting a performance guarantee when prepared for temporary/final occupancy. The guarantee shall be one hundred twenty percent of the estimated cost of constructing the remaining public improvements as submitted by the permittee's engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the city engineer.

2. Before Complete Design Approval and Established Engineered Cost Estimate: A permitee may request the option of submitting a performance guarantee before public improvements are designed and completed. The guarantee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the city engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the city engineer. This scenario applies for a fee-in-lieu situation to ensure adequate funds for the future work involved in design, bid, contracting, and construction management and contract closeout. In this case, the fee-in-lieu must be submitted as cash, certified check, or other negotiable instrument as approved to form by the city attorney.

Response: The owner/applicant understands that performance guarantees must be provided as per the timing schedule in this code section.

C. Duration of the Guarantee. The guarantee shall remain in effect until the improvement is actually constructed and accepted by the city. Once the city has inspected and accepted the improvement, the city shall release the guarantee to the permittee. If the improvement is not completed to the city's satisfaction within the time limits specified in the permit approval, the city engineer may, at their discretion, draw upon the guarantee and use the proceeds to construct or complete construction of the improvement and for any related administrative and legal costs incurred by the city in completing the construction, including any costs

incurred in attempting to have the permittee complete the improvement. Once constructed and approved by the city, any remaining funds shall be refunded to the permittee. The city shall not allow a permittee to defer construction of improvements by using a performance guarantee, unless the permittee agrees to construct those improvements upon written notification by the city, or at some other mutually agreed-to time. If the permittee fails to commence construction of the required improvements within six months of being instructed to do so, the city may, without further notice, undertake the construction of the improvements and draw upon the permittee's performance guarantee to pay those costs.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a performance guarantee remains in effect until the improvement is actually constructed and accepted by the City.

17.50.150 Covenant with the City

17.50.150 Covenant with the city.

A. The city may impose as a condition of final approval of a quasi-judicial permit, the requirement that the applicant execute a covenant with the city agreeing to comply with all conditions of approval. Any such covenant shall include the following elements:

1. An agreement that the applicant will comply with all applicable code requirements, conditions of approval and any representations made to the city by the applicant or the applicant's agents during the application review process, in writing. This commitment shall be binding on the applicant and all of the applicant's successors, heirs and assigns;

2. If the owner fails to perform under the covenant, the city may immediately institute revocation of the approval or any other enforcement action available under state law or this Code. The covenant may also provide for payment of attorney fees and other costs associated with any such enforcement action; and

3. Where the development rights of one site are dependent on the performance of conditions by the owner of another property (such as joint access), the covenants are judicially enforceable by the owner of one site against the owner of another.

Response: The owner/applicant understands that the City may impose as a condition of final approval that the applicant execute a covenant with the City agreeing to comply with all conditions of approval.

B. Adopting the Covenant: The form of all covenants shall be approved by the city attorney. The covenant shall run with the land and shall be placed in the county deed records prior to the issuance of any permits or development activity pursuant to the approval. Proof of recording shall be made prior to the issuance of any permits and filed with the planning division. Recording shall be at the applicant's expense. Any covenant required under this section shall be properly signed and executed within thirty days after permit approval with conditions; provided, however, that the community development director may grant reasonable extensions, not to exceed an additional thirty days, in cases of practical difficulty. Failure to sign and record the covenant within the prescribed period shall require a new application for any use of the subject property.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the form of all covenants are to be approved by the city attorney.

17.50.160 Ex Parte Contact, Conflict of Interest and Bias

17.50.160 Ex parte contact, conflict of interest and bias.

The following rules shall govern any challenges to a decision-maker's participation in a quasi-judicial or legislative action:

A. Ex Parte Contacts. Any factual information obtained by a decision-maker outside the context of a quasi-judicial hearing shall be deemed an ex parte contact. Prior to the close of the record in any particular matter, any decision-maker that has obtained any materially factual information through an ex parte contact shall declare the content of that contact and allow any interested party to rebut the substance of that contact. This rule does not apply to legislative proceedings.

Response: The owner/applicant understands that any decision maker that receives materially factual information through an ex parte contact shall declare the content of that contact.

B. Conflict of Interest. Whenever a decision-maker, or any member of a decision-makers's immediate family or household, has a financial interest in the outcome of a particular quasi-judicial or legislative matter, that decision-maker shall not participate in the deliberation or decision on that matter.

Response: The owner/applicant understands that if a decision maker has a conflict of interest regarding the results of the application decision, that they will not participate in the deliberation or decision.

C. Bias. All decisions in quasi-judicial matters shall be fair, impartial and based on the applicable approval standards and the evidence in the record. Any decision-maker who is unable to render a decision on this basis in any particular matter shall refrain from participating in the deliberation or decision on that matter. This rule does not apply to legislative proceedings.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that all decisions in quasi-judicial matters shall be fair, impartial and based on the application approval standards and the evidence in the record.

17.50.170 Legislative Hearing Process

17.50.170 Legislative hearing process.

A. Purpose. Legislative actions involve the adoption or amendment of the city's land use regulations, comprehensive plan, maps, inventories and other policy documents that affect the entire city or large portions of it. Legislative actions which affect land use must begin with a public hearing before the planning commission.

Response: The request for a comprehensive plan amendment from FU to MUC and the zone change request from FU to MUC-1, requires legislative actions that must begin with a public hearing before the planning commission.

B. Planning Commission Review.

1. Hearing Required. The planning commission shall hold at least one public hearing before recommending action on a legislative proposal. Any interested person may appear and provide written or oral testimony on the proposal at or prior to the hearing. The community development director shall notify the Oregon Department of Land Conservation and Development (DLCD) as required by the post-acknowledgment procedures of ORS 197.610 to 197.625, as applicable.

2. The Community Development Director's Report. Once the planning commission hearing has been scheduled and noticed in accordance with Section 17.50.090C. and any other applicable laws, the community development director shall prepare and make available a report on the legislative proposal at least seven days prior to the hearing.

3. Planning Commission Recommendation. At the conclusion of the hearing, the planning commission shall adopt a recommendation on the proposal to the city commission. The planning commission shall make a report and recommendation to the city commission on all legislative proposals. If the planning commission recommends adoption of some form of the proposal, the planning commission shall prepare and forward to the city commission a report and recommendation to that effect.

Response: The owner/applicant understands that at least one public hearing with the planning commission will be held where all interested parties may comment and attend. Further it is understood that the community development director's report will be available for review at least 7 days prior to the hearing and that a planning commission recommendation will be made at the conclusion of the hearing.

C. City Commission Review.

1. City Commission Action. Upon a recommendation from the planning commission on a legislative action, the city commission shall hold at least one public hearing on the proposal. Any interested person may provide written or oral testimony on the proposal at or prior to the hearing. At the conclusion of the hearing, the city commission may adopt, modify or reject the legislative proposal, or it may remand the matter to the planning commission for further consideration. If the decision is to adopt at least some form of the proposal, and thereby amend the city's land use regulations, comprehensive plan, official zoning maps or some component of any of these documents, the city commission decision shall be enacted as an ordinance.

2. Notice of Final Decision. Not later than five days following the city commission final decision, the community development director shall mail notice of the decision to DLCD in accordance with ORS 197.615(2).

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the City Commission will hold at least one public hearing upon recommendation from the planning commission, and that interested

parties may attend and comment orally and/or in writing. Further it is understood that the decision of the City Commission will be the final decision, and the notice will be available no later than five days following that decision.

17.50.180 Objections to Procedure

17.50.180 Objections to procedure.

Any party who objects to the procedure followed in any particular matter, including bias, conflict of interest and undisclosed ex parte contacts, must make a procedural objection prior to the city rendering a final decision. Procedural objections may be raised at any time prior to a final decision, after which they are deemed waived. In making a procedural objection, the objecting party must identify the procedural requirement that was not properly followed and identify how the alleged procedural error harmed that person's substantial rights.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that any procedural objections must be made prior to the issuance of the final decision.

17.50.190 Appeals

17.50.190 Appeals.

Appeals of any non-final decisions by the city must comply with the requirements of this section.

A. Type I decisions by the planning manager are not appealable to any other decision-maker within the city.

Response: This is a Type IV decision.

B. A notice of appeal of any Type II, III or IV decision must be received in writing by the planning division within ten calendar days from the date notice of the challenged decision is provided to those entitled to notice. Late filing of any appeal shall be deemed a jurisdictional defect and will result in the automatic rejection of any appeal so filed.

Response: The owner/applicant understands that any appeals must be received in writing at within 10 days from the notice of final decision date.

C. The following must be included as part of the notice of appeal:

1. The city planning file number and date the decision to be appealed was rendered;

2. The name, mailing address and daytime telephone number for each appellant;

3. A statement of how each appellant has an interest in the matter and standing to appeal;

4. A statement of the specific grounds for the appeal;

5. The appropriate appeal fee. Failure to include the appeal fee within appeal period is deemed to be a jurisdictional defect and will result in the automatic rejection of any appeal so filed. If a city-recognized neighborhood association with standing to appeal has voted to request a fee waiver pursuant to 17.50.290C., no appeal fee shall be required for an

appeal filed by that association. In lieu of the appeal fee, the neighborhood association shall provide a duly adopted resolution of the general membership or board approving the request for fee waiver.

Response: The owner/applicant understands that any appeal submitted must include supportive materials including an appropriate appeal fee.

D. Standing to Appeal. The following rules prescribe who has standing to appeal:

1. For Type II decisions, only those persons or recognized Neighborhood Associations who have submitted written comments within the fourteen-day comment period have standing to appeal a planning manager decision. Grounds for appeal are limited to those issues raised in writing during the fourteen-day comment period in filing an appeal to the city commission.

2. For Type III and IV decisions, only those persons or recognized neighborhood associations who have participated either orally or in writing have standing to appeal the decision of the planning commission or historic review board, as applicable. Grounds for appeal are limited to those issues raised either orally or in writing before the close of the public record.

Response: The owner/applicant understands that only those persons or recognized neighborhood associations who have participated either orally or in writing have standing to appeal the decision of the planning commission.

E. Notice of the Appeal Hearing. The planning division shall issue notice of the appeal hearing to all parties who participated either orally or in writing before the close of the public record in accordance with Section 17.50.090B. Notice of the appeal hearing shall contain the following information:

1. The file number and date of the decision being appealed;

2. The time, date and location of the public hearing;

3. The name of the applicant, owner and appellant (if different);

4. The street address or other easily understood location of the subject property;

5. A description of the permit requested and the applicant's development proposal;

6. A brief summary of the decision being appealed and the grounds for appeal listed in the notice of appeal;

7. A statement that the appeal hearing is confined to the issues raised in the notice of appeal;

8. A general explanation of the requirements for participation and the city's hearing procedures.

Response: The owner/applicant understands that an appeal hearing will be scheduled and noticed to all parties who participated either orally or in writing and have standing.

F. Appeal Hearing--Scope of Review. Appeal hearings shall comply with the procedural requirements of Section 17.50.120. Appeal hearings shall be conducted by the city commission or a planning commission or historic review board, as applicable, the decision shall be on the record and the issues under consideration shall be limited to those listed in the notice of appeal.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response:

17.50.200 Expiration of an Approval

17.50.200 Expiration of an approval.

A. When Approvals Become Void: All Type IV approvals, except for zoning map or comprehensive plan map amendments, automatically become void if any of the following events occur:

1. If, within two years of the date of the final decision, a building permit has not been issued for no land divisions; or

2. If, within two years of the date of the final decision for all land divisions, the activity approved in the permit has not commenced or, in situations involving only the creation of lots, the public improvements and conditions of approval have not been completed or financial guarantee (surety) provided.

B. New Application Required: Expiration of an approval shall require a new application for any use on the subject property that is not otherwise allowed outright.

C. Deferral of the Expiration Period Due to Appeals: If a permit decision is appealed beyond the jurisdiction of the city, the expiration period shall not begin until review before the land use board of appeals and the appellate courts has been completed, including any remand proceedings before the city. The expiration period provided for in this section will begin to run on the date of final disposition of the case (the date when an appeal may no longer be filed).

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This application is a request for a zone change and comprehensive plan amendment, and is therefore exempt from this section of the code.

17.50.210 Extension of an Approval

17.50.210 Extension of an approval.

A. The community development director may extend, prior to its expiration, any approved permit for a period of one year; provided, however, that there has been substantial implementation of the permit. Any request for an extension shall be reviewed and decided upon by the community development director as a Type II decision.

B. Substantial implementation of a permit shall require at a minimum, demonstrable evidence in a written application showing:

1. The permit holder has applied for all necessary additional approvals or permits required as a condition of the land use or limited land use permit;

2. Further commencement of the development authorized by the permit could not practicably have occurred for reasons beyond the reasonable control of the permit holder;

3. The request for an extension is not sought for purposes of avoiding any responsibility imposed by this Code or the permit or any condition thereunder; and

4. There have been no changes in circumstances or the law likely to necessitate significant modifications of the development approval or conditions of approval.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This application is a request for a zone change and comprehensive plan amendment, and is therefore exempt from this section of the code.

17.50.220 Reapplication Limited

17.50.220 Reapplication limited.

If the application is denied or withdrawn following the close of the public hearing, no reapplication for the same or substantially similar proposal may be made for one year following the date of final decision denying the permit.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that if this request is denied or withdrawn following the close of the public hearing, no reapplication for the same or substantially similar proposal may be made for one year following the date of the final decision denying permit.

17.50.230 Interpretation

17.50.230 Interpretation.

Where a provision of Title 16 or Title 17 conflicts with another city ordinance or requirement, the provision or requirement that is more restrictive or specific shall control.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that where a provision of Title 16 or Title 17 conflicts with another City ordinance or requirement, the provision or requirement that is more restrictive or specific shall control.

17.50.240 Conformity of Permits

17.50.240 Conformity of permits.

The city shall not accept any application for a permit, certificate or other approval, including building permit applications, for any property that is not in full compliance with all applicable provisions of Title 16 and Title 17 and any permit approvals previously issued by the city.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the City will not accept any application for a permit, certificate or other approval, including building permit applications, for any property that is not in full compliance with all applicable provisions of Title 16 and 17 and any permit approvals previously issued by the City.

17.50.260 Reconsideration of a Final Decision

17.50.260 Reconsideration of a final decision.

Under this section, parties with standing may seek reconsideration of a final decision rendered pursuant to a Type II, Type III, or Type IV process. Reconsideration is warranted where the city's decision indicates the decision-maker failed to understand or consider certain relevant facts in the record or misinterpreted the application in some material way. Any request for reconsideration must be received by the planning division within ten days of when the decision in question was rendered and must specifically describe the alleged misunderstanding or misinterpretation. A request for reconsideration shall not stay the effectiveness of the city's final decision, nor shall it affect any applicable appeal deadlines to the land use board of appeals. If the request is granted, the community development director shall notify all affected parties that the decision will be reconsidered. Any request for reconsideration by the applicant shall be deemed a waiver of the one-hundred-twenty-day deadline under Section 17.50.070. (Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that they may request a reconsideration of a decision if it is indicated that the City's decision failed to consider certain relevant facts in the record or misinterpreted the application in some material way.

17.50.270 Revocation of a Previously Approved Permit

17.50.270 Revocation of a previously approved permit.

In the event an applicant, or the applicant's successor in interest, fails to fully comply with all conditions of permit approval or otherwise does not comply fully with the city's approval, the city may institute a revocation or modification proceeding under this section.

A. Situations When Permit Approvals May Be Revoked or Modified. All quasi-judicial permits may be revoked or modified if the planning commission determines a substantial likelihood that any of the following situations exists:

1. One or more conditions of the approval have not been implemented or have been violated;

2. The activities of the use, or the use itself, are substantially different from what was approved; or

3. The use is subject to the nonconforming use regulations, the applicant has not obtained approval, and has substantially changed its activities or substantially increased the intensity of its operations since the use became nonconforming.

B. Process for Revocation and Modification. Revocation or modification shall be processed as a Type IV decision. The planning division or any private complaining party shall have the burden of proving, based on substantial evidence in the whole record, that the applicant or the applicant's successor has in some way violated the city's approval.

C. Possible Actions at the Revocation hearing. Depending on the situation, the planning commission may take any of the actions described below. The planning commission may not approve the new use or a use that is more intense than originally approved unless the possibility of this change has been stated in the public notice. Uses or development which are alleged to have not fulfilled conditions, violate conditions or the use is not consistent with the city's approval may be subject to the following actions:

1. The planning commission may find that the use or development is complying with the conditions of the approval. In this case, the use or development shall be allowed to continue.

2. The planning commission may modify the approval if it finds that the use or development does not meet the standards for revocation and that the use can comply with the original approval criteria if-certain conditions are met. In this case, the planning commission may modify the existing conditions, add new conditions to ensure compliance with the approval criteria, or refer the case to the code compliance officer for enforcement of the existing conditions.

3. The planning commission may revoke the approval if it finds there are substantial violations of conditions or failure to implement conditions of prior land use decisions, such that the original approval criteria for the use or development are not being met.

D. Effect of Revocation. In the event permit approval is revoked, the use or development becomes illegal. The use or development shall be terminated within thirty days of the date the revocation final order is approved by the planning commission, unless the decision provides otherwise. In the event the decision-maker's decision on a revocation request is appealed, the revocation action shall be stayed pending a final, unappealed decision.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that in the event an applicant, or the applicant's successor in interest fails to fully comply with all conditions of permit approval or otherwise does not fully comply with the City's approval, the City may institute a revocation or modification proceeding as detailed in this code section.

17.50.280 Transfer of Approval Rights

17.50.280 Transfer of approval rights.

Unless otherwise stated in the city's permit decision, any approval granted under Title 16 or Title 17 of this Code runs with the land and is transferred with ownership of the land. Any conditions, time limits or other restrictions imposed with a permit approval shall bind all subsequent owners of the property for which the permit was granted.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that this potential approval will run with the land and is transferred with ownership of the land.

17.50.290 Fees

17.50.290 Fees.

The city may adopt by resolution, and revise from time to time, a schedule of fees for applications and appeals. Fees shall be based upon the city's actual or average cost of processing the application or conducting the appeal process. The only exception shall be the appeal fee for a Type II decision, which shall be limited by ORS 227.175(10)(b). The requirements of this section shall govern the payment, refund and reimbursement of fees.

A. Payment. All fees shall be due and payable at the time the application or appeal is submitted. No application or appeal shall be accepted without the proper fee being paid.

B. Refunds. Fees will only be refunded as provided in this subsection:

1. When a fee is paid for an application which is later found to not be required, the city shall refund the fee.

2. Errors. When an error is made in calculating a fee, overpayment will be refunded.

3. Refund upon withdrawal of an application. In the event an applicant withdraws an application, the planning department shall refund the unused portion of the fee. In this case, the planning department will deduct from the fee the city's actual costs incurred in processing the application prior to withdrawal.

C. Fee Waivers. The planning division may waive all or any portion of an application fee if, in the opinion of the director, a particular application must be resubmitted because of an error made by the city. Appeal fees may be waived, wholly or in part, by the city commission, if the city commission finds that, considering fairness to the applicant and to opposing parties, a full or partial waiver of the appeal fee is warranted. Appeal fees shall not be charged for an appeal filed by a city-recognized neighborhood association, so long as the appeal has been officially approved by the general membership or board of the neighborhood association at a duly announced meeting.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands the application fees that will be due upon submittal of the application packet and has reviewed these fees with Planning Staff at the pre-application meeting held on November 10, 2009.

17.68 Zoning Changes and Amendments

17.68.010 Initiation of the Amendment

17.68.010 Initiation of the amendment.

A text amendment to this title or the comprehensive plan, or an amendment to the zoning map or the comprehensive plan map, may be initiated by:

A. A resolution request by the city commission;

B. An official proposal by the planning commission;

C. An application to the planning division presented on forms and accompanied by information prescribed by the planning commission.

D. A Legislative request by the Planning Division.

All requests for amendment or change in this title shall be referred to the planning commission.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant of the subject property is requesting a zone change from FU to MUC-1, and a comprehensive plan amendment from FU to MUC. This request is being made through the submission of an application form and accompanied by information prescribed by the planning commission.

17.68.020 Criteria

17.68.020 Criteria.

The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.

Response: As outlined within this narrative below, the requested zone change and comprehensive plan amendment are consistent with the applicable goals and policies of the comprehensive plan.

The goal is to establish a City zone so that the property may be developed in the future to the highest and best use. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City. The Mixed Use Corridor (MUC) District is designed to apply along selected sections of the transportation corridors. In 17.29.010 of the Oregon City Municipal Code Beavercreek Road has been identified as one of the selected roads for this type of development.

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Response: At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There is no development plans proposed and no uses proposed at this time; however, public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All services are available at the site and have capacity to serve the property. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate

with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal Exhibit A of the Annexation Agreement (December 19, 2007) establishes the Police Funding Fee Schedule for this property. The appropriate fees will be assessed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Response: Beavercreek Road has been identified as a transportation corridor. The Beavercreek Road Concept Plan and traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate

with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: City of Oregon City Comprehensive Plan Goals are addressed in the following sections. The following Statewide planning goals are applicable to this application:

GOAL 1: CITIZEN INVOLVEMENT
OAR 660-015-0000(1)
To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.
The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the on-going land-use
planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues.
Federal, state and regional agencies, and special- purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.

RESPONSE: Goal 1 Citizen Involvement – This application procedure allows for citizen involvement and communication throughout the entire process. Before this land use application was submitted an informational meeting was held with the Caufield Neighborhood Association and surrounding neighbors within 300 feet of the subject property. The submittal included a mailing list of these neighbors within 300 feet of the subject property and the Caufield Neighborhood Association Chairs so that the City could send notices of application and invitation to attend and/or participate in the public hearing held by the planning commission and the city commission. Finally, should this application be approved, a notice will be sent to all people of standing who participated in these public hearings giving them a final opportunity to appeal the decision if desired.

GOAL 2: LAND USE PLANNING
OAR 660-015-0000(2)
PART I – PLANNING
To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Response: Goal 2 Land Use Planning – This zone change and comprehensive plan amendment request is being reviewed for consistency with all applicable City Code sections, the City Comprehensive Plan, Statewide Goals, Metro designations, etc. by the process of this Type IV decision which entails a quasi-judicial process with at least one public hearing by the planning commission and one public hearing by the city commission.

GOAL 6: AIR, WATER AND LAND RESOURCES QUALITY
OAR 660-015-0000(6)
To maintain and improve the quality of the air, water and land resources of the state.

All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Response: Goal 6 Air, Water and Land Resources Quality – This zone change and comprehensive plan amendment request will allow for the subject property to be designated with a City zone so that it may be developed in the future to the highest and best use. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All waste discharges from future development will be accommodated with a utility system designed to City standards so as not to threaten or violate applicable state or federal environmental quality statutes, rules or standards. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road.
Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. Water quality measures for storm water will be incorporated into final plans to meet or exceed the requirements of the City.

GOAL 9: ECONOMIC DEVELOPMENT
OAR 660-015-0000(9)
To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.
Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements. Comprehensive plans for urban areas

Response: Goal 9 Economic DevelopmentThe Mixed Use Corridor District has been identified by the city to be designed along selected sections of specified transportation corridors including Beavercreek Road. TheBeavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. The permitted uses offer a wide variety of potential to increase the economic growth and provide facilities to support current markets.The allowed uses in an MUC-1 zone will help contribute to the goals of providing a stable and healthy economy with potential employment opportunities and/or alternative housing options to the typical single family home.

GOAL 10: HOUSING
OAR 660-015-0000(10)
To provide for the housing needs of citizens of the state.
Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Response: Goal 10 Housing – The MUC-1 zone allows for multi-family housing and assisted living facilities which would contribute a more varied housing option to the overall housing inventory of the City.

GOAL 11: PUBLIC FACILITIES AND SERVICES
OAR 660-015-0000(11)
To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

RESPONSE: Goal 11 Public Facilities and Services – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.
All services are available at the site and have capacity and framwork to serve the urbanization of this property and the adjacent rural areas. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
The future development of this site, once the City zone and comprehensive plan designation are set, will allow for timely, orderly and efficient use of public services.

GOAL 12: TRANSPORTATION
OAR 660-015-0000(12)
To provide and encourage a safe, convenient and economic transportationsystem.
A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal

reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

RESPONSE: Goal 12 Transportation - Beavercreek Road has been identified as a transportation corridor. The Beavercreek Road Concept Plan and support traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. Tri-met currently serves Clackamas Community College with bus service via Molalla Ave, Highway 213, and Beavercreek Road. No service is currently provided to this site, but with development and the adjacent Oregon City High School extension of service is planned. Bus service has direct connections to light rail at Clackamas Town Center with connections to the City of Portland, Gresham, Hillsboro and the Airport. The Beavercreek Road cross section inclues bicycle lanes together adjacent to the vehicle lanes. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

GOAL 14: URBANIZATION
OAR 660-015-0000(14)
(Effective April 28, 2006)
To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Response: Goal 14 Urbanization – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. The recent Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use.

17.68.025 Zoning Changes for Land Annexed into the City

17.68.025 Zoning changes for land annexed into the city.

A. Notwithstanding any other section of this chapter, when property is annexed into the city from the city/county dual interest area with any of the following comprehensive plan designations, the property shall be rezoned upon annexation to the corresponding city zoning designation as follows:

TABLE INSET:

Plan Designation	*Zone*
Low-Density Residential	*R-10*
Medium-Density Residential	*R-5*
High-Density Residential	*R-2*
General Commercial	*C*
Industrial	*CI-Campus Industrial*
Mixed-Use Downtown	*MUD*
Mixed-Use Employment	*MUE*
Mixed-Use Commercial	*- NC*
Future Urban	*FU-10*

Response: The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The holding zone when annexed was the Clackamas County Future Urban (FU) designation, which is the current zone listed for this property. The property owner/applicant is seeking a Comprehensive Plan Amendment and zone change request now to MUC-1.

B. Applications for these rezonings shall be reviewed pursuant to the requirements in Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This narrative addresses above sections and shows how the requirements of 17.50 are applicable and being applied.

17.68.030 Public Hearing

17.68.030 Public hearing.

A public hearing shall be held pursuant to standards set forth in Chapter 17.50.

A. Quasi-judicial reviews shall be subject to the requirements in Chapter 17.50.

B. Legislative reviews shall be subject to the requirements in Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV quasi-judicial review and is subject to at least one public hearing by the planning commission and at least one public hearing by the City commission.

17.68.040 Approval by the Commission

17.68.040 Approval by the commission.

If the planning commission approves such request or application for an amendment, or change, it shall forward its findings and recommendation to the city commission for action thereon by that body.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV quasi-judicial review and is subject to at least one public hearing by the planning commission and at least one public hearing by the City commission.

17.68.050 Conditions

17.68.050 Conditions.

In granting a change in zoning classification to any property, the commission may attach such conditions and requirements to the zone change as the commission deems necessary in the public interest, in the nature of, but not limited to those listed in Section 17.56.010:

A. Such conditions and restrictions shall thereafter apply to the zone change;

Response: The owner/applicant understands that if the zone change classification is granted, there may be conditions and requirements attached by the commission as deemed necessary.

B. Where such conditions are attached, no zone change shall become effective until the written acceptance of the terms of the zone change ordinance as per Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant further understands that the zone change does not become effective until the above-mentioned conditions and requirements are accepted in writing.

17.68.060 Filing of an Application

17.68.060 Filing of an Application.

Applications for amendment, or change in this title shall be filed with the planning division on forms available at the planning division office. At the time of filing an application, the applicant shall pay the sum listed in the community development department fee schedule.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This narrative together with the applicable forms, fees and supportive information are being submitted to the Planning Division as required.

City of Oregon City Comprehensive Plan

The following City Comprehensive Plan Policies are applicable to this zone change and comprehensive plan amendment request:

Goal 2.3 Corridors

Goal 2.3 Corridors

Focus transit-oriented, higher intensity, mixed-use development along selected transit corridors.

Policy 2.3.1

Ensure planning for transit corridors includes facilities and access management, aesthetics (including signage and building facade improvements), infill and redevelopment opportunities, high-density residential development, and business assistance to existing businesses.

Response: Policy 2.3.1 – The subject property is at the existing signalized intersection of Beavercreek and Meyers Roads and will serve as the only access from the transit corridor. This connection will provide for connectivity and circulation opportunities to a future connected local street network. Beavercreek Road has been identified in the Beavercreek Road Concept Plan as a transportation corridor. The MUC-1 zone will allow for mixed use development that could include high density residential and a variety of medical, office and retail uses. Since development and use is not proposed as a part of this application, specific building requirements (aesthetics, facades, etc.) will be reviewed at the time the design review application is submitted.

Goal 2.4 Neighborhood Livability

Goal 2.4 Neighborhood Livability

Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.2

Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.

Response: Policy 2.4.2 - The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The recent Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with these goals. A MUC-1 designation allows for a variety of uses which all relate to potential services and housing options that could help create the vibrant core area that is the goal of the City. Since development and use are not specifically proposed as a part of this application, specific requirements would be reviewed under the future design review application. The permitted uses offer opportunities when development occurs to project a vibrancy and uniqueness through architecture, landscaping and mixed uses.

Policy 2.4.3

Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.

Response: Policy 2.4.3 – Beavercreek Road has been identified as a transportation corridor. Bus service is already available at hightway 213, Beavercreek Road and Molalla Road with service to Clackamas Community College. In time,Tri-met bus service will be extended to the site and already provides conductivity to the light rail at Clackamas Town Center. The Beavercreek road cross section provides for bike lanes. Access to the site will be at the signalized intersection of Beavercreek and Meyers Roads which provides connectivity from the existing residential neighborhoods, school and this future mixed use. With the potential adoption of the Beavercreek Road Concept Plan and potential future design review application for the subject property, transportation requirements will be addressed to meet this policy.

Policy 2.4.4
Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.

Response: Policy 2.4.4 – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. When annexed, the property was assigned the Clackamas County designated FU zone as the "holding" zone. The surrounding farmland property to the north, northeast and southeast was brought into the UGB in 2002/2004 and is zoned FU. As a part of the Beavercreek Concept Plan this property is envisioned to be a sustainable community with high density mixed use employment and housing. The requested MUC-1 zone allowed uses fall into this category and would be consistent with these goals. There are no environmental constraints on the subject property. However, there is a 50 foot wide gas corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area. This strip would be suitable for parking/maneuvering, open space and/or setbacks.

Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Response: Policy 2.4.5 – There are no plans for a neighborhood school on this property. Oregon City High School is located to the northwest of the subject site. The MUC-1 zone includes assisted living facilities and childcare centers as allowed uses. Therefore, no barriers would be created by allowing this requested zone change and comprehensive plan amendment.

Goal 2.5 Retail and Neighborhood Commercial
Goal 2.5 Retail and Neighborhood Commercial
Encourage the provision of appropriately scaled services to neighborhoods.

Policy 2.5.1
Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.

Response: Policy 2.5.1 – Beavercreek Road has been identified as a transportation corridor. With the final adoption of the Beavercreek Road Concept Plan and potential future design review application for the subject property, these goals will be addressed to meet this policy. Limited access from Beavercreek Road will reduce conflicting traffic movements and provide an avenue for conductivity and circulation with a future local street network. Bike lanes are included in the Beavercreek Road design and will encourage ridership from this site to residential areas. The proposed mixed use corridor district encourages improved aesthetic character by requiring substantial landscaping minimums. A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

Policy 2.5.2
Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.

Response: Policy 2.5.2 – The subject property is located at the intersection Beavercreek and Meyers Roads which are classified as neighborhood collectors or higher. The Mixed Use Corridor District has the range of permitted uses that will provide the local residents with vital goods, services and employment. Beavercreek Road has been identified as a transportation corridor. The subject property is at the signalized intersection of Beavercreek and Meyers Road. The MUC-1 zone would allow for a variety of retail and medical uses that could potentially serve the community. While the development plans for the site will be determined at a future date, the proposed plan amendment and zone change are consistent with this policy.

Policy 2.5.4

Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Response: Policy 2.5.4 – The subject property is on the easterly side of Beavercreek Road and separated from low density housing. When adopted the Beavercreek Road Concept Plan this property will be surrounded by similar commercial and high density housing and offices. The MUC-1 zone allows for mixed use development which includes multi-family housing. Thus, any future development of the site that may include commercial areas would be consistent with this policy. The currently existing housing near the site across Beavercreek Road is a combination of residential zones including R-6, R-3.5 and R-10.

Goal 2.6 Industrial Land Development
Goal 2.6 Industrial Land Development
Ensure an adequate supply of land for major industrial employers with family wage jobs.

Policy 2.6.8
Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

Response: Policy 2.6.8 – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current holding zone is FU. The property is a part of the Beavercreek Road Concept Plan. Code Section 17.65.030 defines the applicability of a required master plan as properties greater than ten (10) acres. The subject property is 9.59 acres and therefore is exempt from the master plan requirements. The requested zone of MUC-1 would allow for a variety of uses that will add employment opportunities to the area and meet the goals of the Concept Plan. Many of the permitted uses in the MUC zone, such as professional services, dental services, and veterinary clinics are family-wage jobs.

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.
Policy 2.7.1
Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

Response: Policy 2.7.1 - The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. As a part of the Beavercreek Concept Plan this propertywas envisioned to be a sustainable community with high density mixed use employment and housing. The current Oregon City Comprehensive Plan map (Ordinance no. 08-1014) identifies this area as future urban. Permitted uses in the MUC-1 zone offer an array of uses includeing multi-family and commercial uses. These allowed uses are consistent with the goals and policies to accommodate growth.

Policy 2.7.2

Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:
- *Low Density Residential (LR)*
- *Medium Density Residential (MR)*
- *High Density Residential (HR)*
- *Commercial (C)*
- *Mixed Use Corridor (MUC)*
- *Mixed Use Employment (MUE)*
- *Mixed Use Downtown (MUD)*
- *Industrial (I)*
- *Public and Quasi-Public (QP)*
- *Parks (P)*
- *Future Urban Holding (FUH)*

Response: Policy 2.7.2 – The requested comprehensive plan amendment would change the designation of this site to MUC, which is an allowed classification under this policy and would help in meeting the goals of property use for the area.

Policy 2.7.3
Recognize the design types of Metro's 2040 Growth Concept. Establish boundaries for the Regional Center in Downtown Oregon City; Corridors along 7th Street, Molalla Avenue, Beavercreek Road, and Highway 99; Industrial areas; and for Inner and Outer Neighborhoods.

Response: Policy 2.7.3 – The Metro 2040 Growth Concept map designated this property as an "outer neighborhood". Under the plan these new neighborhoods are to have emphasis on smaller single family, mixed housing types and uses. As a part of the Beavercreek Concept Plan this property is envisioned to be a sustainable community with high density mixed use employment and housing. Beavercreek Road has been identified as a transportation corridor, and the subject property is at the intersection of Beavercreek Road and Meyers Road.. The MUC-1 zone and the corresponding uses together with an MUC Comprehensive plan designation fit in with these goals. Metro has provided written support of a zone change to MUC-1.

Goal 6.1 Air Quality
Goal 6.1 Air Quality
Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1
Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Response: Policy 6.1.1 – The subject property is within the Beavercreek Concept Plan, which envisions a sustainable community. One of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation

corridor, where multi forms of transportation will be available.The MUC-1 zone's list of uses encourage mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy.

Goal 8.1 Developing Oregon City's Park and Recreation System
Goal 8.1 Developing Oregon City's Park and Recreation System
Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.5
Identify and construct a network of off-street trails throughout the city for walking and jogging.

Response: Policy 8.1.5 – The Beavercreek Road Concept Plan shows a potential trail planned that would partially fall on the subject property. An MUC-1 zone would not interfere with this trail being developed in the future. Further, there is a 50 foot wide gas corridor easement that runs across the northerly corner of the property, which creates a strip of unbuildable area that may be suitable for a walking trail per the easement guidelines.

Goal 9.8 Transportation System
Goal 9.8 Transportation System
Recognize the importance of the land use-transportation link and encourage businesses to locate in areas already served by the type of transportation system they need.

Policy 9.8.1
Through coordination with TriMet and local employers, encourage and promote the use of mass transit to travel between residential areas and employment areas.

Response: Policy 9.8.1 – Beavercreek Road has been identified as a transportation corridor in the Beavercreek Road Concept Plan. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. Currenty bus service is available at the intersection of Beavercreek Road and Hwy. 213, and to the Clackamas Junior College on Hwy. 213. Future service to the High School and this property is expected when justified.This would be examined and reviewed more closely at time of development application (design review).

Policy 9.8.5
Work with the Oregon Department of Transportation to preserve and improve the capacity of Highway 213 and its intersection with I-205.

Response: Policy 9.8.5 – A traffic report has been prepared that studies the effects of various uses allowed by the MUC-1 zone to the area.
The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible

impact of the proposed zone change. A more detailed review would be required at time of development application (design review)

Policy 9.8.7
Assess methods to integrate the pedestrian, bicycle and elevator transportation modes into the mass transit system.

Response: 9.8.7 - Beavercreek Road has been identified as a transportation corridor in the Beavercreek Road Concept Plan. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. This will be examined and reviewed more closely at time of development application (design review).

Goal 10.1Diverse Housing Opportunities
Goal 10.1 Diverse Housing Opportunities
Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Policy 10.1.3
Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Response: Policy 10.1.3 – Currently the subject property has a holding zone of FU. The adoption of the Beavercreek Road Concept Plan would make the MUC-1 a reasonable zone given the goals of mixed use and high density residential. The multi-family use allowed under MUC-1 would allow for a potential alternative to single family homes already in the area.

Goal 11.1 Provision of Public Facilities
Goal 11.1 Provision of Public Facilities
Serve the health, safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities.

Policy 11.1.6
Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Response: Policy 11.1.6 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. This area has been studied under The Beavercreek Road Concept Plan which envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the

easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City.

Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal and would be addressed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Goal 12.1 Land Use Transportation Connection
Goal 12.1 Land Use-Transportation Connection
Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.3
Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Response: Policy 12.1.3 – The proposed MUC-1 zone would encourage mixed uses that would benefit from being on Beavercreek Road which has been designated a transportation corridor. This would be reviewed in more detail at time of development application.

Goal 12.5 Safety
Goal 12.5 Safety
Develop and maintain a transportation system that is safe.

Policy 12.5.1
Identify improvements that are needed to increase the safety of the transportation system for all users.

Response: Policy 12.5.1 – The traffic analysis has identified improvements that will be needed to increase the safety of the local transportation system. Beavercreek Road has been identified as a transportation corridor. Improvements along Beavercreek that would enhance transportation safety would be reviewed at time of development application. However it can be said that MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation.

Goal 12.6 Capacity
Goal 12.6 Capacity
Develop and maintain a transportation system that has enough capacity to meet users' needs.

Policy 12.6.1
Provide a transportation system that serves existing and projected travel demand.

Response: Policy 12.6.1 - Beavercreek Road has been identified as a transportation corridor. Capacity of the transportation system would be reviewed in more detail at time of development application.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency

plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

Policy 12.6.2
Identify transportation system improvements that mitigate existing and projected areas of congestion.

Response: Policy 12.6.2 – A traffic analysis is attached to this application which demonstrates that transportation capacity is sufficient and can be made adequate prior to actual development. This report has been prepared using a combination of the initial Beavercreek study an analysis models showing that the difference between the current EFU and the proposed Mixed Use zone will not create an unmitigated significant impact on the transportation system. The models prepared and approved by the City as part of the master plan efforts, which include growth assumptions, planned improvements, and an assessment of how the intersections will operate with existing zoning were used as the baseline condition. A mixed-use development scenario was overlaid on the models to analyze the incremental impact of the proposed zone change. Mitigation considerations are addressed in the attached traffic analysis and will be examined in more detail at time of development application submittal.

Goal 13.2 Energy Conservation
Goal 13.2 Energy Conservation
Plan public and private development to conserve energy.

Policy 13.2.1
Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).
Response: Policy 13.2.1 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. When studied under The Beavercreek Road Concept Plan it was envisioned that a complete and sustainable community with high density mixed use employment and housing would be the result. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City, and the above policy.

Goal 14.1 Urban Growth Boundary

Establish, and amend when appropriate, the Urban Growth Boundary in the unincorporated area around the city that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including residential, commercial, industrial, and institutional.

Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth Boundary.

Response: Policy 14.1.2 – The property was added to the UGB in 1979 and is not subject to Title 11. Surrounding farmland property was brought into the UGB in 2002 and 2004. No changes to the UGB are proposed as a part of this application. Site development plans will be prepared and reviewed for compliance to City standards as a part of a future Development Review application and no site development will occur until a concept plan is adopted for the areaand granted by the City of Oregon City.

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Response: Policy 14.3.1 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City, and this policy.

Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All services are available at the site and have capacity to serve the property. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal. Exhibit A of the Annexation Agreement (December 19, 2007) establishes the Police Funding Fee Schedule for this property. The appropriate fees will be assessed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Future development of this site under the proposed MUC-1 zoning will be developed in accordance with the development standards applicable to this zone and the density of development will be consistent with maximizing the efficient utilization of public facilities.

Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Response: Policy 14.3.2 – Any extension of services necessary to serve the site will not interfere with other surrounding properties receiving these same services, but rather potentially further their availability to future development. This will be examined in more detail at time of development application.

Policy 14.3.4

Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Response: Policy 14.3.4 – Any development activity on the site will trigger appropriate SDC fees and will be examined at time of development application.

Beavercreek Concept Plan

The applicant recognizes that the Beavercreek Concept Plan has been remanded by LUBA back to the City, but the applicant believes that the plan reflects the views of the city for this area. Therefore, as a precaution, this application will address the Beavercreek Concept Plan's components

Goal 1 Complete and Sustainable Community
Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Response: The proposed MUC-1 zone and accompanying MUC comprehensive plan designation does allow for a variety of uses and/or combination of uses that would promote diversity of potential services and housing options for the community. Included in the permitted uses are residential, including multi-family, Medical and Dental facilities, professional services, retail and parks or neighborhood centers. Additional sustainability strategies include sustainable stormwater management plans, supporting LEED certifications, extending a trail framework, and street layout with logical and connecting street patterns. This designation is consistent with the provisions of the Beavercreek Concept Plan and its promotion of sustainable community design choices.

Objective 1.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 1.1 – The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will intergrage and utilize the surrounding city and rural economy.

Objective 1.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 1.2 – The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. The subject property is buffers the rural lands on the east, south and north by land within the current UBG. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 1.4
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.

Response: Objective 1.4 - The MUC-1 zone permitted uses encourage neighborhood-oriented and scaled mixed-use centers by providing employment and housing for local residents of all ages and incomes. Retail, professional and office uses, plus residential uses provide jobs and housing in a neighborhood-oriented environment.

Objective 1.6
Allow the integration of housing and employment uses where practicable.

Response: Objective 1.6 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 1.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 1.7 – Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 2 Model of Sustainable Design Be a model of sustainable design, development practices, planning, and innovative thinking.

Response: The proposed zone change to MUC-1 does foster sustainability by the mixed and transit supportive land uses. Innovative sustainable stormwater management and building supporting LEED certifications can be used when development occurs.

Objective 2.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 2.1 - The MUC-1 zone allows for a variety to uses that could potentially utilize the surrounding City and rural economies.

Objective 2.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 2.2 - The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due

consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 2.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: Objective 2.3 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 2.4
Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.

Response: Objective 2.4 - The proposed zone change to MUC-1 mixed uses will encourage environmentally responsible developments that enhance livability of neighborhoods and protect and enhance the natural environment.

Goal 3 Green Jobs Attract "green" jobs that pay a living wage.

Response: The MUC-1 zone allows for a variety of uses that could potentially include businesses with "green jobs" that pay a living wage.

Objective 3.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 3.1 - The MUC-1 zone has a long list of uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 3.2 - The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008and buffers the subject property from the rural areas. This area is part of the Beavercreek Concept Plan whose master vision

in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 3.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: Objective 3.3 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 3.4
Allow the integration of housing and employment uses where practicable.

Response: Objective 3.4 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 3.5
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 3.5 - Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 5 Natural Beauty Incorporate the area's natural beauty into an ecologically compatible built environment.

Response: Sustainable stormwater plans using best management practices will enhance the natural beauty and provide ecologically compatibility. The MUC-1 zone allows for a variety of uses that can be built in an ecologically compatible manner and incorporate the area's natural beauty. Currently the Beavercreek Concept Plan indicates a portion of a trail to cross the subject property which could be incorporated nicely into a development project.

Objective 5.1
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Response: Objective 5.1 – The development plan for this property will ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. Pedestrian experience considerations would be examined in detail at time of submittal of any development application.

Objective 5.2
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 5.2 - The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 5.3
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 5.3 - The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 5.4
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 5.4 - Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal.
Goal 6 – Provide Multi-Modal transportation links.
Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 6 Multi-modal Transportation Provide multi-modal transportation links (such as bus routes, trails, bikeways, etc.) that are connected within the site as well as to the surrounding areas.

Objective 6.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Response: Objective 6.1 - MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. This property will provide public connectivity

routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the area and to the communities beyond.

Objective 6.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural storm water systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Response: Objective 6.2 -A sustainable stormwater management plan will provide for water quality and quantity in the conveyance systems either open or closed to existing downstream areas. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Goal 7 Safety Along Beavercreek Road Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Response: Beavercreek Road has been identified as a transportation corridor. The existing intersection of Meyers and Beavercreek is a signalized crossing that will control speeds and access. The desired cross section of Beavercreek Road has already been installed on the High School side of the street and incorporates pedestrian and bicycle modes. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. This would be examined in detail at time of development application submittal.

Objective 7.1
Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.

Response: Objective 7.1 – Development will extend a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel. The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development..

Objective 7.2
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Response: Objective 7.2 – Uses proposed for the property will be designed in a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Goal 8 Oregon City High School and Clackamas Community College Promote connections and relationships with Oregon City High School and Clackamas Community College.

Response: The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development. This zone and allowed uses and future development of the property will promote connections with Oregon City High School and Clackamas Community College.

Objective 8.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 8.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Goal 9 Unique Sense of Place Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.

Response: The MUC-1 zone with the many permitted uses will create a sense of place of mixed uses, scale of design and commitment to sustainability and allow compliance with the Goal unlike other zones.

Objective 9.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Response: Objective 9.1 - Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. The applicant will provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas with the Beavercreek Road Concept area and to the communities beyond. This would be examined in detail at time of development application submittal.

Objective 9.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Response: The applicant will provide an integrated street system that is designed as practicable to minimize the impacts to the environment sustainable design that provide storm water quality and quantity control using best management practices.

Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Objective 9.3
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.4
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 9.5
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.6
Allow the integration of housing and employment uses where practicable.

Response: Objective 9.6 - The MUC-1 zone allows for a variety to uses that could potentially provide goods, services and/or housing. This zone provided for an integration of housing and employment uses which will likely to occur on the subject property.

Objective 9.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Phil Gentemann

From: Dan Drentlaw [ddrentlaw@ci.oregon-city.or.us]
Sent: Thursday, October 22, 2009 12:32 PM
To: phil@centurionhomes.net
Cc: Bill Kabeiseman; Tony Konkol
Subject: RE: 19896 S Beavercreek Road.doc

Phil –

While the property in question is annexed to Oregon City, it is designated Future Urban on our Comprehensive Plan. In order to develop the property one of the major steps would be to apply for a change to the comprehensive plan designation and apply for city zoning. This is a type 4 process and would require public hearings before the Planning Commission and City Commission. One of the major review criteria would be consistency with the Compressive plan and the Beavercreek Rd. concept plan. While we cannot guarantee the outcome of this process, it appears that rezoning to MUE or MUC would be consistent with the Beavercreek Rd. concept plan. These hearings could be combined to save processing time and a decision would have to be issued with 120 days from the submittal of a complete application. If you would like details regarding the application requirements, please contact Tony Konkol.

From: Phil Gentemann [mailto:phil@centurionhomespdx.com]
Sent: Tuesday, October 20, 2009 1:50 PM
To: Dan Drentlaw
Cc: KleinmanJL@aol.com
Subject: 19896 S Beavercreek Road.doc

Dan attached is a summary outline reference zoning our property at 19896 S Beavercreek Road. I could also send you the information i
handed out at the council meeting last week if you need it or think it would be helpful

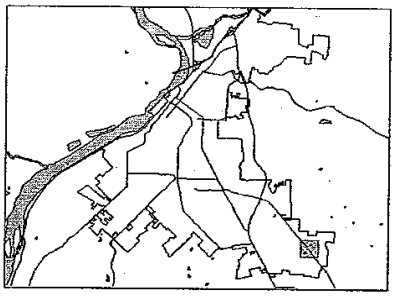
No virus found in this incoming message.
Checked by AVG - www.avg.com
Version: 8.5.423 / Virus Database: 270.14.24/2449 - Release Date: 10/20/09 18:42:00

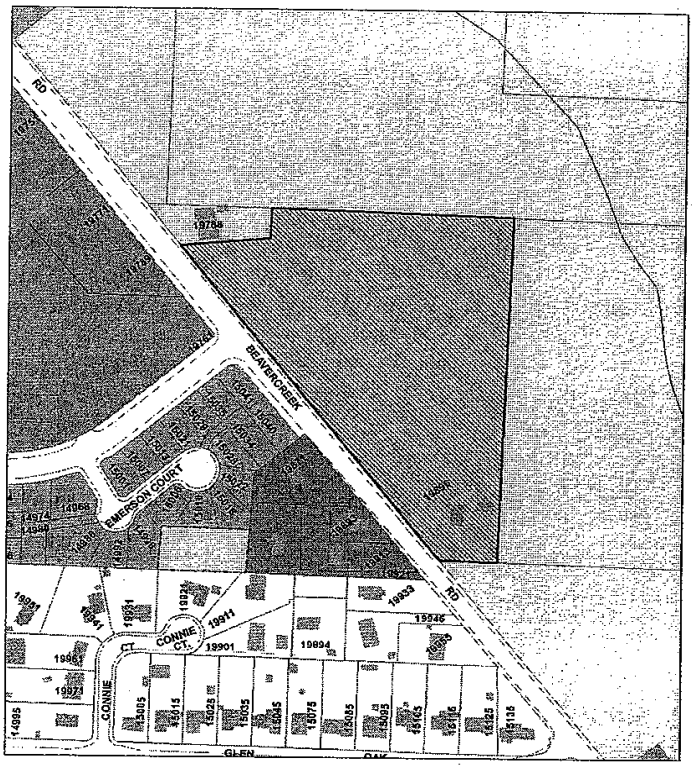
Oregon City Permit Submittal - Property Zoning Report

Printed October 23, 2009

Taxlot: 3-2E-10C -00800

Site Address: 19896 BEAVERCREEK RD





Taxlot Information

Taxlot Number: 3-2E-10C -00800
Alt ID: 870711

Site Address: 19896 BEAVERCREEK RD
OREGON CITY
OR 97045

Parcel Area (acres - approx): 9.73
Parcel Area (sq. ft. - approx): 423838

Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Overlay Information

In Historic District? N
In Willamette Greenway? N
Geologic Hazards (Steep slope)? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

Planning Designations

Zoning: County
- County
Comprehensive Plan: fu
- Future Urban

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N

Taxpayer Information

Last Name: MARYLWOOD LLC
First Name:
Address: 7128 SW GONZAGA ST STE 100
PORTLAND
OR 97223

This map is not suitable for survey, engineering, legal, or navigation purposes. Data errors and omissions may exist in map and report.

City of Oregon City - PO Box 3040 - 320 Warner Milne Road - Oregon City, OR 97045
Phone: (503) 657-0891 Fax: (503) 657-7892 Web: www.ci.oregon-city.or.us

CITY OF OREGON CITY
Pre-Application Form

File Number_____

Meeting Date ____/____/____ **Time:** 10 A.M. **Location:** 221 Molalla Ave., Ste. 200
Applicants and appropriate representatives are expected to present a detailed explanation of their proposal at the conference.

Applicant:
Name Theta, LLC
Contact Person Bruce Goldson
Address P.O. Box 1345
Lake Oswego, Oregon 97035
Phone 503-481-8822

Owner(s):
Name Marylwood LLC
Address 7128 SW Gonzaga St.
Portland Oregon 97223
Phone 503-620-2047

Property Description:
Tax Assessor Map Number(s):
3-2E-10C-00800

Address: 19896 Beavercreek Rd.
Oregon City, Oregon 97045

Proposed Development Action:
Change the Comprehensive Plan & Zoning to Mixed use Corridor District (MUC-1). No development is proposed at this time

Applicant Signature _____ Date 10/26/09

*The pre-application conference is to provide the applicant the necessary information to make an informed decision regarding their land use proposal. Pre-Application Conferences expire six (6) months from the meeting date. Please submit **10 copies** of the required information.*

Pre-Application Checklist:
Failure to submit a complete application may require additional fees and pre-application meetings.

Minimum Pre-Application Requirements
- ☐ Pre-application Fee (Major or Minor)
- ☐ Narrative
  A detailed narrative description of your proposal and any specific questions you would like the Community Development Department to respond to at the Pre-Application Conference.
- ☐ Site/Plot Plan (8½" x 11" or 11" x 17")
  - ___ Parcel and building setback dimensions
  - ___ Existing and proposed structures
  - ___ Location and dimensions of easements and driveway
  - ___ Location of utilities – storm, sanitary sewers & water (including size of service and street location)
  - ___ Width of adjacent right of way
- ☐ Property Zoning Report (Obtained from City Hall)
- ☐ Additional Information / Requirements

Additional Subdivision / Minor Partition Requirements
- ☐ Slope map (if area is exceeds a 24% slope)
- ☐ Significant Tree Locations (all trees with a caliper over 6 inches)
- ☐ Utility layout
- ☐ Proposed detention system with topographic contours
- ☐ Location of on-site water resources
- ☐ Connectivity analysis that includes shadow plats of all adjacent properties demonstrating how they can be developed meeting existing code.

Additional Site Plan & Design Review Requirements
- ☐ Proposed elevations
- ☐ Parking lot layout
- ☐ Parking space calculations (based on use and square footage of building)

Please review this material and return comments prior to the above meeting date for consideration.

Routing: PW Dir. ☐; Bldg ☐; Eng ☐; Fire ☐; Finance ☐; Parks (DK) ☐; Clack Co (E) ☐; Clack Co (P) ☐; ODOT ☐; Schools ☐; Tri-Met ☐; Metro ☐; Police ☐; Other_____

Narrative

Subject Property:

19896 Beavercreek Rd., Oregon City 97045

Tax lot 800, T3S, R2E, Sec 10C, 9.59 Acres

Current Zone:

Future Urban

Proposed Change:

Amend the comprehensive plan and a Zone change to change the zone to Mixed Use Corridor District "MUC-1".

Description:

This parcel is a triangular shaped 9.59 acre property with one residential home in the southerly end of the site. The majority of the land has a very gentle slope and is currently farm land. A major gas line corridor runs through the property at the northerly end of the parcel. The property is opposite the Oregon City High School opposite the Meyers and Beavercreek intersection.

The subject property is in the City of Oregon City and was included with the Beavercreek Road concept plan. The Oregon City Municipal Code, Chapter 17.29 – Mixed Use Corridor District specifically identifies Beavercreek Road as a transportation corridor where this zone should be applied. Currently there isn't any MUC zoning along Beavercreek Road but there is MUC along Molalla Ave directly to the west.

The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Bearvecreek Road this proposed zoning is in concert with the goals of the City. METRO has been contacted and has agreed to allow this property to be rezoned separately.

At this time no specific development is proposed. The goal is to establish the zone and then proceed with the planning and development of the site with the highest and best use. All the basic Utilities are found in Beavercreek Road or adjacent to the site. The Beavercreek Road right-of-way appears to be generally 60 feet wide with 30-feet along this property.

PortlandMaps

19896 S BEAVERCREEK RD - CLACKAMAS COUNTY

Aerial Photo

2008 / '07 / '06 / '05 / '04 / '03 / '02 / '01 6" / 2' / **4'** / 10' / 20' Streets: **Off** Lots: **On** Dot: **On**

0 200 FT

City of Portland, Corporate GIS 10/26/2009

THE GIS APPLICATIONS ACCESSED THROUGH THIS WEB SITE PROVIDE A VISUAL DISPLAY OF DATA FOR YOUR CONVENIENCE. EVERY REASONABLE EFFORT HAS BEEN MADE TO ASSURE THE ACCURACY OF THE MAPS AND ASSOCIATED DATA. THE CITY OF PORTLAND MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE AS TO THE CONTENT, SEQUENCE, ACCURACY, TIMELINESS OR COMPLETENESS OF ANY OF THE DATA PROVIDED HEREIN. THE USER OF THESE APPLICATIONS SHOULD NOT RELY ON THE DATA PROVIDED HEREIN FOR ANY REASON. THE CITY OF PORTLAND EXPLICITLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INACCURACIES IN THE INFORMATION PROVIDED REGARDLESS OF HOW CAUSED. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY DECISIONS MADE OR ACTIONS TAKEN OR NOT TAKEN BY THE USER OF THE APPLICATIONS IN RELIANCE UPON ANY INFORMATION OR DATA FURNISHED HEREUNDER. FOR UPDATED INFORMATION ABOUT THE MAP DATA ON PORTLANDMAPS PLEASE REFER TO CITY'S METADATA. FOR QUESTIONS ABOUT ASSESSMENT INFORMATION PLEASE CONTACT THE COUNTY ASSESSORS OFFICE IN YOUR COUNTY.

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32E10C 00580
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Meyers Rd
Beavercreek Rd
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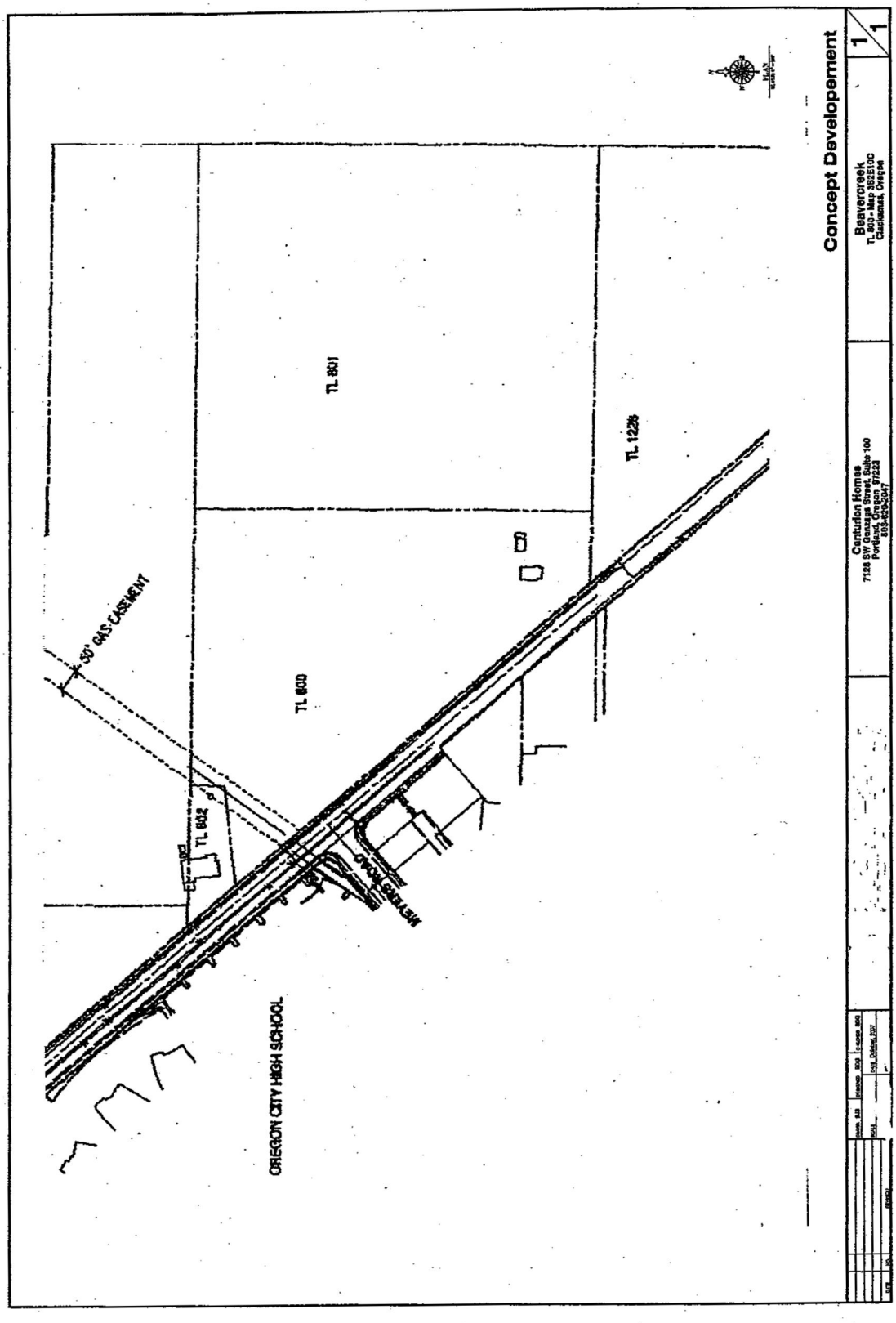
R L I S
REGIONAL LAND INFORMATION SYSTEM
Taxlot 3S2E10C00800
Original 1979 UGB
The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.
1 inch equals 189 feet
Feet
0 50 100 200 300
Clackamas
Location Map
METRO
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org
N
Project Date: Apr 30, 2007 Plot date: Apr 30, 2007 K:\final\proj\map\taxlot_in_ugb.mxd
Please recycle with mixed paper.



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

CITY OF OREGON CITY
PRE-APPLICATION CONFERENCE SUMMARY

Pre-application conferences are required by Section 17.50.030 of the City Code, as follows:
(A) PURPOSE: The pre-application conference is to provide the applicant the necessary information to make an informed decision regarding their land use proposal.
(B) A pre-application conference is required for all land use permits.
(C) Time Limit: A pre-application conference is valid for a period of six (6) months.
(D) An omission or failure by the Planning Division to provide an applicant with relevant information during a pre-application discussion shall not constitute a waiver of any standard, criterion, or requirement of the City of Oregon City. Information given in the conference is subject available information and may be subject to change without notice. *NOTE: The subsequent application may be submitted to any member of the Planning Staff.*

PRE-APP # 09-11 / DATE: 11/10/09
APPLICANT: Goldson
SITE ADDRESS: 19896 Beavercreek Rd
PROPERTY DESCRIPTION: 3-2E-10C +1800
STAFF: Kom Kol ZONING: FU
PROPOSED USE/ACTIVITY: Comp Plan Amend. / Zone Change (MUC/MUC-1)
INFORMATION NECESSARY TO BEGIN DEVELOPMENT: This listing of information does not preclude the Community Development Department or hearings body from requesting additional data necessary to make a recommendation and/or decision regarding the proposed activity.

1. PLANNING

- ☐ Zoning/ Setbacks
- ☐ Is the Site in a Water Resource Overlay District? (Yes or No)
- ☐ Is the Site in a Historic Overlay District? (Yes or No)
- ☐ List of Minimum Required Planning Processes:

1. Zone Change
- ☑ OCMC 17.50 – *Administrative Processes*
- ☑ OCMC 17.68 – *Zone Change*

Other: See approval criteria 17.68.020. Each section must be addressed w/ findings - references to maps or plans will not be accepted. Contact John Replinger to discuss scope of needed transportation impact review for worst case land use allowed on site. Address existing & needed utilities to support MUC zone. Address incompatibility w/ existing Metro design type (Outer neighborhood). Address why sections of Comp Plan not applicable.
See MFC on Beavercreek Concept Code.
*****Note: Existing addresses are subject to change with the creation of new parcels******
Must meet w/ Canfield N.A. prior to application being deemed complete. Contact Chris Taylor (503) 496-1681 for Canfield contact information.
Address statewide planning goals.
Recommend policies to address: 2.3.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.5.1, 2.5.2, 2.5.4, 2.6.8, 2.7.1, 2.7.2, 2.7.3, 6.1.1, 8.1.5, 9.8.1, 9.8.5, 9.8.7, 10.1.3, 11.1.6, 12.1.3, 12.5.1, 12.6.1, 12.6.2, 13.2.1, 14.1.2, 14.3.1, 14.3.2, 14.3.4.
Goals & objectives of Beavercreek Concept Plan.

2. ENGINEERING

A. Grading: _____
B. Drainage: _____
C. Sanitary Sewer: _____
D. Water: _____
E. Right-of-Way Dedication/Easements: _____
F. Street Improvements (including continuation of existing streets within subdivisions): _____
G. Special Analysis (traffic study, geotechnical study, EIS): _____
H. Development Impact Statement required with Subdivision applications.
I. TSP compliance (Connectivity, Street Widths, etc.): _____
Other: _____
_____

3. BUILDING

A. Proposed Construction Type: _____
B. Number of Stories: _____
C. Square Footage: _____
D. Number of Buildings: _____
E. Type of Occupancy: _____
F. Fire Sprinklers: _____
G. Valuation (estimate): $_____
H. Fire/Life Safety Required: Yes _____ No _____

4. FIRE

A. Fire Flow Requirements (gallons per minute): _____
B. Location/Number of Hydrants: _____
C. Access Requirements: _____
D. Other: _____

OTHER COMMENTS:
_____
_____
_____
_____
_____

NOTICE TO APPLICANT: A property owner may apply for any permit they wish for their property. HOWEVER, THERE ARE NO GUARANTEES THAT ANY APPLICATION WILL BE APPROVED. No decisions are made until all reports and testimony have been submitted. This form will be kept by the Community Development Department . A copy will be given to the applicant. IF the applicant does not submit an application within six (6) months from the Pre-application Conference meeting date, a NEW Pre-Application Conference will be required.

CITY OF OREGON CITY

COMMUNITY DEVELOPMENT DEPARTMENT

2009 FEE SCHEDULE

(EFFECTIVE JANUARY 1, 2009)

All fees are subject to change by Resolution of the City Commission. The applicant is responsible for paying the application fee in effect at the time the **formal application** is submitted

APPLICATION TYPE	FILING FEE
Appeal - Administrative (includes SDC)	$250
Annexation Application // Election Deposit	$3,898 $3,000
Amendment to Comp Plan	$3,960
Compatibility Review/Non-conforming Use	$742
Expedited Land Division	$3,713 plus $372 per lot
Geologic Hazards Review	$780
Historic Review	
- New Construction	$50 plus 2.5% of construction cost, (max. $1,000)
Lot Line Adjustment	$1,040
Master Plan (Amendment)	$618 $1,857 $3,094
Minor Partition	$3,553
Residential Design Standards	$69
Sign Variance	$1,139
Site Plan & Design Review / Detailed Master Plan	
- $500,000 to $3,000,000	$3,094 plus 0.005 X project cost
Subdivision	$3,713 plus $309 per lot
Variance (Administrative)	$1,206
Water Resource Review	
- Exemption for Non-Single/Two Family Lot	$378
- Water Resource for Non-Single/Two Famil	$1,759
Zone Change / Text Amendment	$2,512

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

2009 TRAFFIC IMPACT ANALYSIS (TIA) FEE STRUCTURE

Effective January 1, 2009

Land Use	Base Fee[1]	Large Study Area or Location near or Along Key Corridor[2]	Conditional Use, Zone Change, or Master Plan[3]	Meetings[4] Cost/Hr.
Residential		$612	$1,837	$122
0-50 units	$981			
50+ units	$1,225			
Non-residential		$612	$1,837	$122
<50K ft^2	$2,450			
50 to 100K ft^2	$3,062			
>100K ft^2	$3,674			

Notes:

1. Covers initial review. Each time supplemental information is submitted for review in association with a particular land use application, a supplemental review fee will be assessed at 50 percent of the base fee.
2. Applies to study areas including more than three intersections/accesses and/or development located near or along congested corridors.
3. Applies to developments involving a conditional use or zone change, or master plan.
4. Charged on a time and material basis including travel and attendance time for pre-application meetings, site visits, planning commission meetings, and other meetings called by applicant or City staff to review issues associated with the development.

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Theta,llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

November 10, 2009

Mr. John Dingwall, Co-Chair
Caufield Neighborhood Association
19915 Sophia Court
Oregon City, Oregon 97045

Sent Via Certified Mail/Return Receipt Request

RE: Proposed Zone Change and Comprehensive Plan Amendment
19896 Beavercreek Road

Dear Mr. Dingwall:

I represent the owner of the property located at 19896 Beavercreek Road in Oregon City (tax map enclosed). We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application (per City Code 17.50.050) we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. Please note this is a preliminary proposal only and is subject to change before final submittal.

I look forward to hearing from you at your earliest convenience and meeting with your association. Thank you for your time and attention to this request.

Sincerely,

Deana Goldson
Theta Engineering, llc
Phone: (503) 579-6810

7008 3230 0003 3843 1140

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(Domestic Mail Only; No Insurance Coverage Provided)

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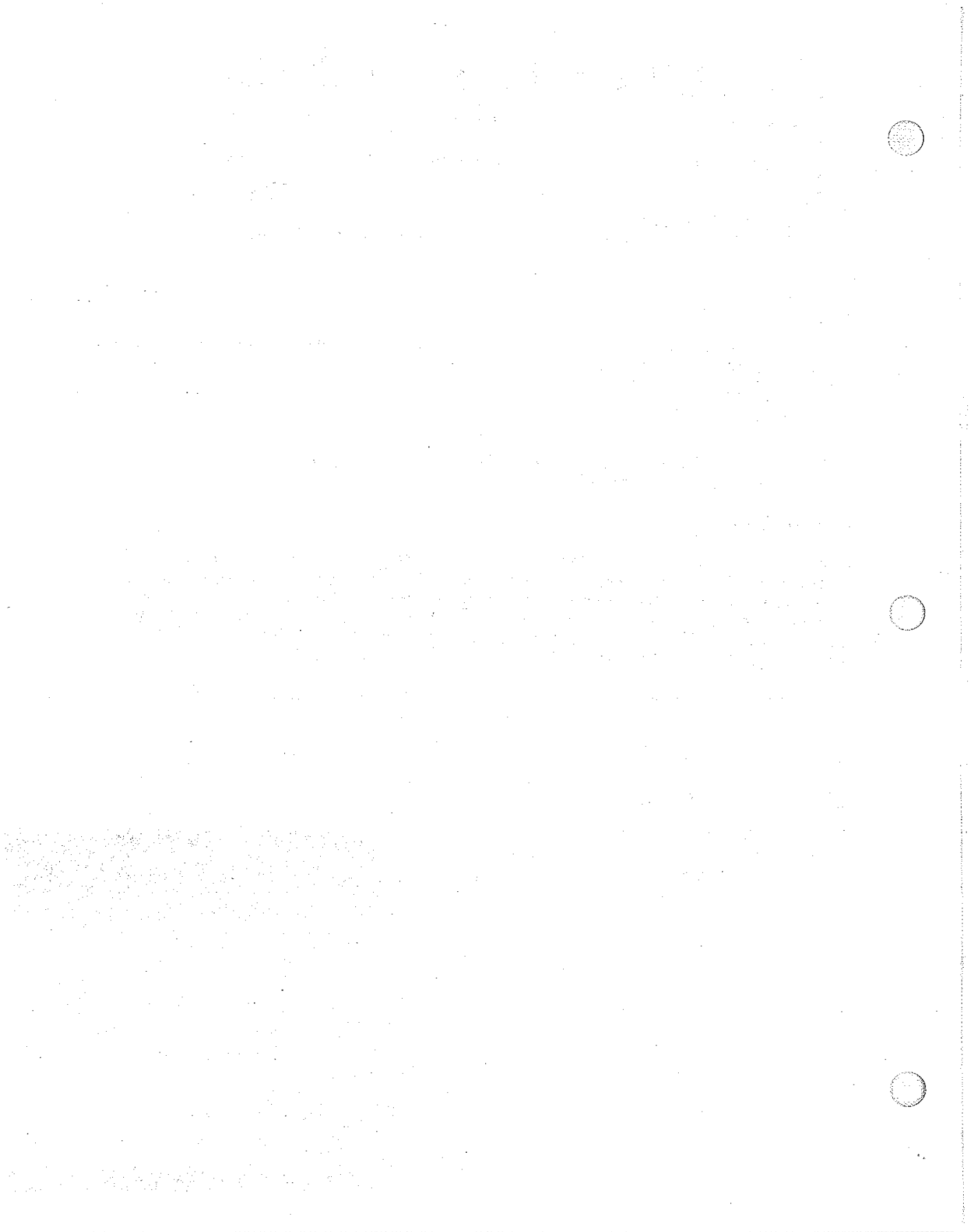
Postage	$ .44
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 5.54

USPS SCHOLLS CPU PORTLAND, OR LAMBS ON
Postmark Here
NOV 2009

Sent To: John Dingwall
Caufield Neigh. Assoc.
Street, Apt. No.; or PO Box No.: 19915 Sophia Ct.
City, State, ZIP+4: Oregon City, OR 97045

PS Form 3800, August 2006 — See Reverse for Instructions



Theta, llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

November 10, 2009

Mr. Larry Hanlon, Co-Chair
Caufield Neighborhood Association
19895 Sophia Court
Oregon City, Oregon 97045

Sent Via Certified Mail/Return Receipt Request

RE: Proposed Zone Change and Comprehensive Plan Amendment
19896 Beavercreek Road

Dear Mr. Hanlon:

I represent the owner of the property located at 19896 Beavercreek Road in Oregon City (tax map enclosed). We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application (per City Code 17.50.050) we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. Please note this is a preliminary proposal only and is subject to change before final submittal.

I look forward to hearing from you at your earliest convenience and meeting with your association. Thank you for your time and attention to this request.

Sincerely,

Deana Goldson
Theta Engineering, llc
Phone: (503) 579-6810

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 5.54

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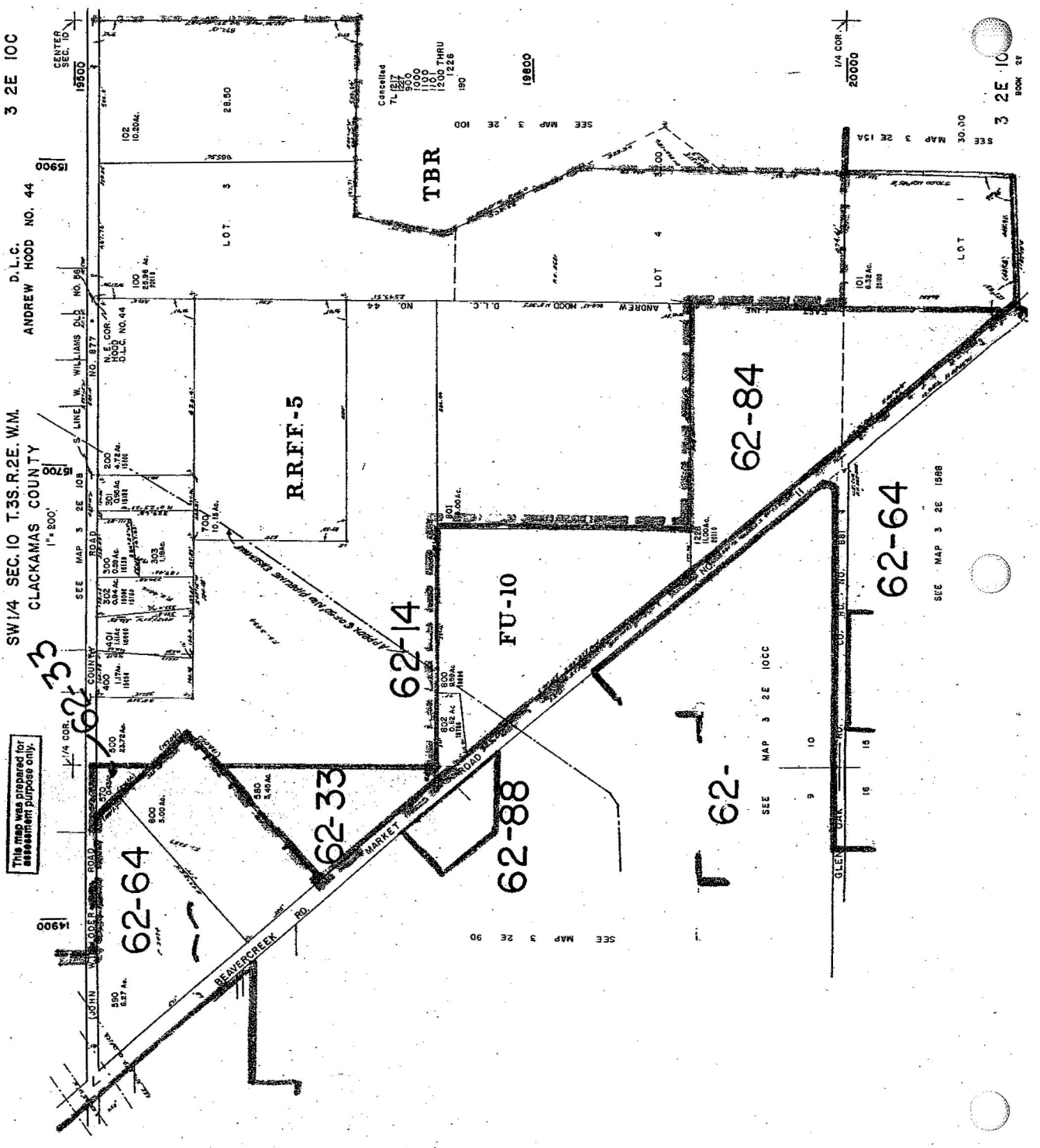
Postmark Here
NOV 10 2009
USPS

Sent To: Larry Hanlon
Caufield Neigh. Assoc.
Street, Apt. No.; or PO Box No.: 19895 Sophia Ct.
City, State, ZIP+4: Oregon City, OR 97045

PS Form 3800, August 2006 — See Reverse for Instructions



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Deana

m:	Deana [deanag@astonishingstudios.com]
t:	Tuesday, November 10, 2009 2:03 PM
To:	'jayeagle2@gmail.com'; 'kerryhanlon47@yahoo.com'
Cc:	'thetaeng@comcast.net'
Subject:	Proposed Zone Change/Comprehensive Plan Amendment Application

Hello Mr. Dingwall and Mr. Hanlon,
I represent the owner of the property located at 19896 Beavercreek Road in Oregon City. We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. I am also sending this request via certified letter/return receipt requested as required by City Code 17.50.050, but please feel free to respond to this email directly since it is often a more convenient way to communicate. I look forward to hearing from you. Thank you.
-Deana Goldson
Theta Engineering, LLC
Phone: (503) 579-6810

Theta, llc
ENGINEERING - SURVEYING - PLANNING

4260 Country Woods Ct.
Lake Oswego, Oregon 97035

503/481-8822
e-mail: bdc4s@hotmail.com

Memorandum

To: File

From: Bruce Goldson

Date: November 17, 2009

Subject: **Neighborhood meeting**

Meeting Highlights:
4-members of the Caufield Neighborhood Association including the Co-chairs and the landuse committee.

- No room in the agenda to include a presentation in November meeting
- No meeting in December
- First regular meeting is January 26, 2010 where there is room in the addenda. Requested to be included in that meeting
- Provided members with proposal to change the zone to MUC-1
- Preliminary Concerns:
    - Transportation, use of Beavercreek Road
    - Impact to High School
    - Would like to narrow the uses allowed under the Zone

C:\Users\goldson\Documents\Thetaeng\theta 2009-12\neighborhood minutes 111709.docx

32E09D 01300
OREGON CITY SCH DIST #62
BOX 2110
GON CITY OR97045

32E09DD00100
CARRILLO SAUL
15041 EMERSON CT
OREGON CITY OR97045

32E09DD00200
CARTER RONALD & WENDY
15035 EMERSON CT
OREGON CITY OR97045

32E09DD00300
LEON PABLO E
15029 EMERSON CT
OREGON CITY OR97045

32E09DD03200
LARSON RALPH L
15040 EMERSON CT
OREGON CITY OR97045

32E09DD00400
PAYRAN-TENORIO ANGEL
15021 EMERSON CT
OREGON CITY OR97045

32E09DD03100
DENT CURTIS S
15034 EMERSON CT
OREGON CITY OR97045

32E09DD03000
FERNANDEZ MICHAEL W & JUDITH
PS2 BOX 5525
APO AE9012

32E09DD02900
ANDERSON SHANON M
15022 EMERSON CT
OREGON CITY OR97045

32E09DD02800
OPZEELAND JASON C & MARY C
7703 SE 104TH AVE
PORTLAND OR97266

32E10C 00500
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00580
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00802
ROBERTS ROCKFORD W & CORA J
19788 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00800
MARYLWOOD LLC
7128 SW GONZAGA ST STE 100
PORTLAND OR97223

32E10C 00801
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00100
DROZ WESLEY M & MINNIE L
19871 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00200
MCCOLLUM DARRELL W & TAMMY L
19921 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00300
RAHBERGER QUINTIN E
19913 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00400
CARPENTER MARK A
19893 BEAVERCREEK RD
OREGON CITY OR97045

32E10C 01228
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10CC01100
DUFFIELD DAVE A & KAREN M
19911 CONNIE CT
OREGON CITY OR97045

32E10CC00800
WEISSER DENNIS P
19894 CONNIE CT
OREGON CITY OR97045

32E10CC00500
LOFTS BRYCE H & KATIE S
19933 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00900
WEISSER DENNIS P
19894 CONNIE CT
OREGON CITY OR97045

32E10CC00700
BURTON S P & A F
19945 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00600
DANFORTH HENRY J & LIANDA L
19955 BEAVERCREEK RD
OREGON CITY OR97045

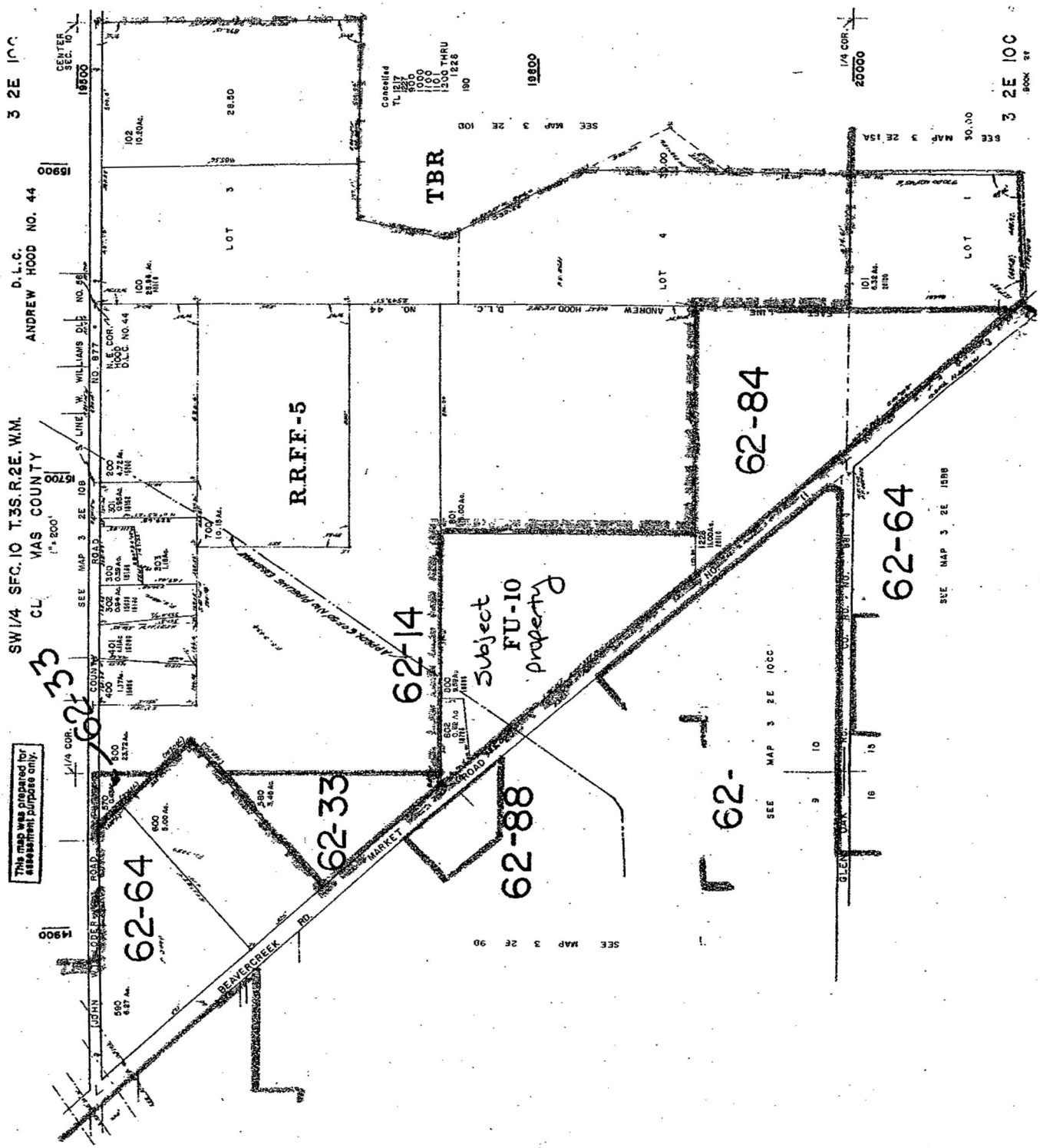
32E10CC02600
WEED RODNEY W & PAMELA A
15095 GLEN OAK RD
OREGON CITY OR97045

32E10CC02700
LZE MICHAEL ALLEN
GLEN OAK RD
OREGON CITY OR97045

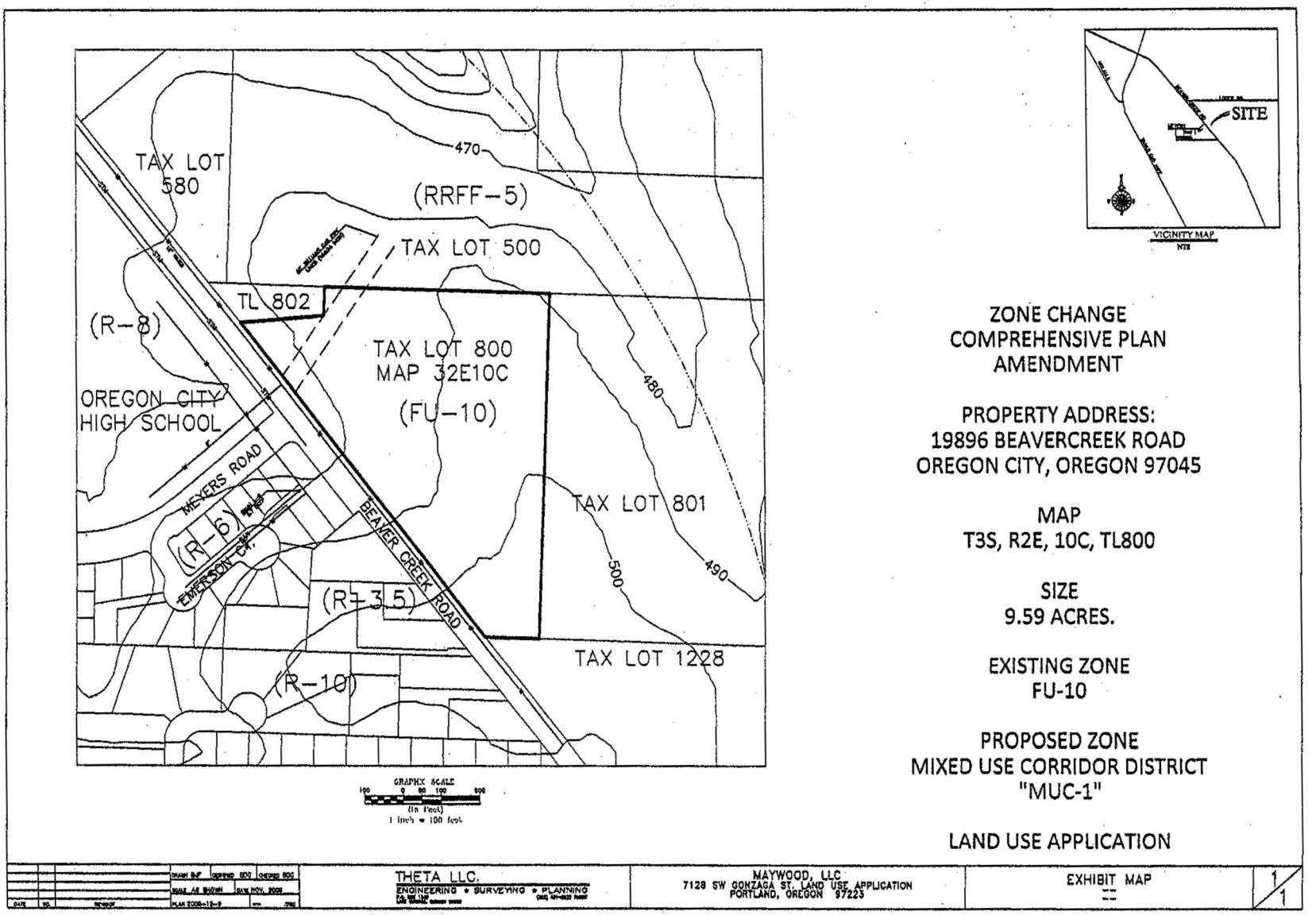
32E10CC02800
SCHWAB KAY L
15115 GLEN OAK RD
OREGON CITY OR97045

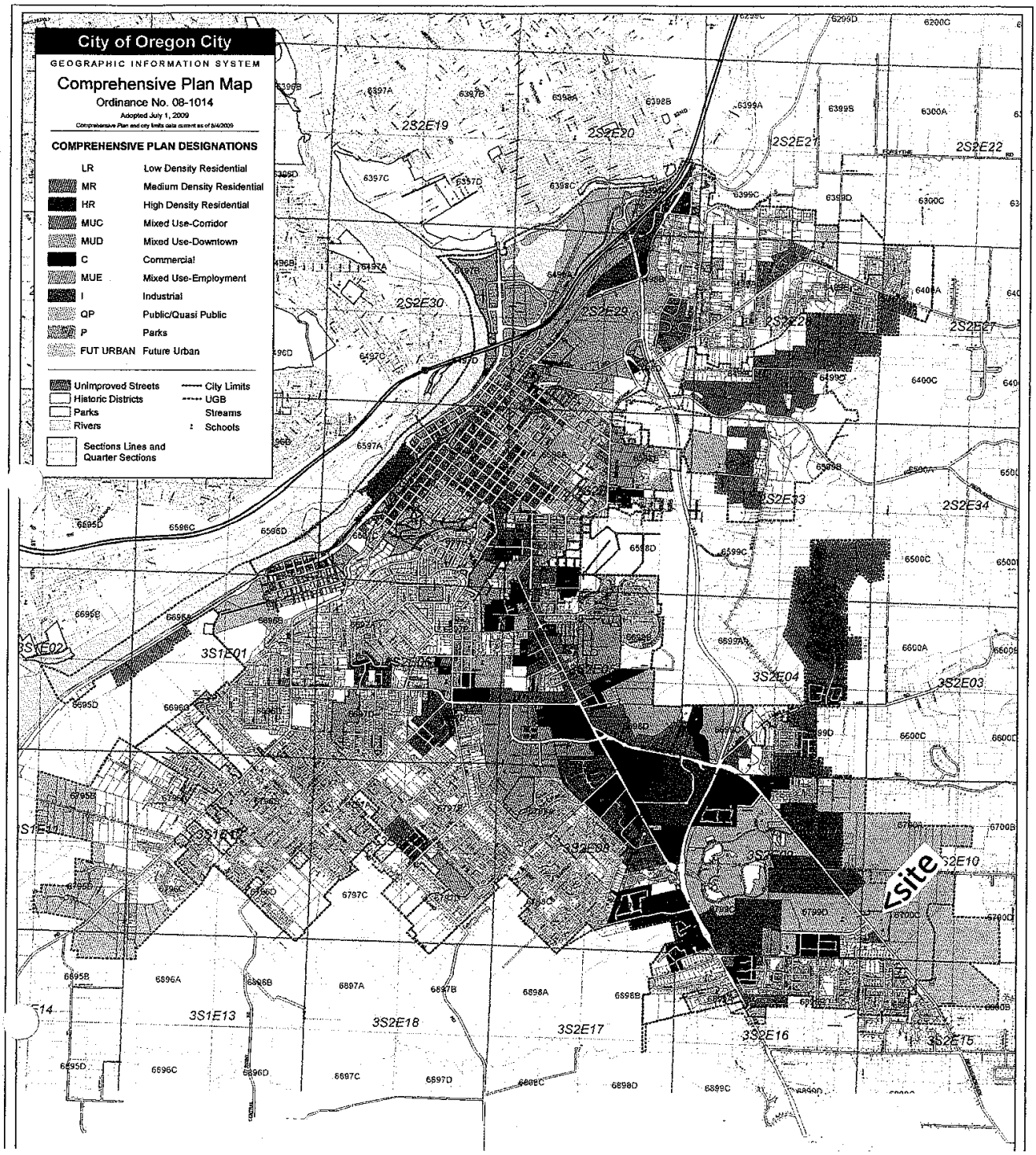
32E10CC02900
BEADLE LEE C TRUSTEE
15125 GLEN OAK RD
OREGON CITY OR97045

32E10CC03000
MITCHELL CATHY D
15135 GLEN OAK RD
OREGON CITY OR97045



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor


TAX LOT 580
(RRFF-5)
TAX LOT 500
TL 802
(R-8)
TAX LOT 800
MAP 32E10C
(FU-10)
OREGON CITY HIGH SCHOOL
MEYERS ROAD
(R-6)
EMERSON CT.
BEAVER CREEK ROAD
(R-3.5)
TAX LOT 801
TAX LOT 1228
(R-10)
470
480
490
500
SITE
VICINITY MAP
GRAPHIC SCALE
(In Feet)
1 inch = 100 feet
ZONE CHANGE
COMPREHENSIVE PLAN
AMENDMENT
PROPERTY ADDRESS:
19896 BEAVERCREEK ROAD
OREGON CITY, OREGON 97045
MAP
T3S, R2E, 10C, TL800
SIZE
9.59 ACRES.
EXISTING ZONE
FU-10
PROPOSED ZONE
MIXED USE CORRIDOR DISTRICT
"MUC-1"
LAND USE APPLICATION
THETA LLC.
ENGINEERING • SURVEYING • PLANNING
MAYWOOD, LLC
7128 SW GONZAGA ST. LAND USE APPLICATION
PORTLAND, OREGON 97223
EXHIBIT MAP
1
1



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Oregon City
SITE
THAYER RD
COLTRANE
ROLLINS
MARJORIE
INSKEEP
JUGLAS
KILDEER
NELSON
THIMBLE CREEK
MEYERS
EMERSON
GLENOAK
BRITTANY
CAMBRIA
TALAWA
LOSSIE MEADOWS
LANDREWS
HILTON HEAD
PEBBLE BEACH
SKY GLASS
DANNY
12
10
9
8
11
7
6
5
4
3
2
1
Beavercreek Road Concept Plan
Hybrid Alternative:
TAZs and Land Use
Legend
Concept Plan Area
TAZ, Hybrid Alternative (4/2/07)
Park Overlay
Constrained Land (Powerlines)
Taxlot
Hybrid Alternative
Land Use
Main Street
North Employment Campus
West Mixed Use Neighborhood
East Mixed Use Neighborhood
Mixed Employment Village
Natural Area
Right of Way
Map Creation Date: 08/28/06
0 250 500 1,000
Feet
Aerial Photography is 2 foot resolution, AE, LLC.
All data on this map is derived from the Metro RLIS database. This information was developed at multiple scales and accuracies. No warranty is made with this map.

The traffic report is being prepared by Kittelson & Associates and will be inserted into this application at a later date.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

June 21, 2010 Project #: 10608.0

Pete Walter
City of Oregon City
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RE: Beavercreek Road/Meyers Road Rezone Transportation Planning Rule Analysis – Oregon City, Oregon

Dear Pete,

This letter summarizes the findings of a professional transportation engineering analysis of a proposed property rezone located at 19896 Beavercreek Road in Oregon City, Oregon[1]. Based on the analysis presented herein, the proposed rezone of the 9.73-acre study site from *Future Urban* zoning to City *Mixed-Use Corridor* (MUC-1) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements. The remainder of this memorandum provides further documentation of the study methodology, findings, and recommendations.

INTRODUCTION

This letter was prepared to address requirements identified within Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, TPR), which contains the applicable criteria for a zone change analysis. The intent of the TPR is to ensure the transportation system can accommodate the change of uses to the adopted system plan and that any resultant significant effects can be mitigated.

The land included in the rezone is located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road. The property is included within the *Beavercreek Road Concept Plan* area as a future mixed-use center. The overall *Beavercreek Road Concept Plan* is currently subject to remand by the Department of Land Conservation and Development (DLCD) and is not considered an approved plan. The location of the property is generally shown in Figure 1 while Figure 2 illustrates the property location in the context of the Beavercreek Road Concept Plan. No specific development plan or site entitlements are proposed in conjunction with this zone change.

Note that while the overall *Beavercreek Road Concept Plan* is subject to the remand due to non-transportation related issues, the horizon period transportation system development assumptions

[1] Property also identified as T3S-R2E-10C, tax lot 800

and modeling efforts completed as part of the initial Concept Plan remain valid. As discussed herein, the Concept Plan transportation assumptions were developed and approved through a collaboration effort by the City, County, ODOT, and METRO, and as such are consistent with stakeholder direction. Therefore, volume growth assumptions and travel patterns have been retained from the original study.

PROJECT LITERATURE REVIEW

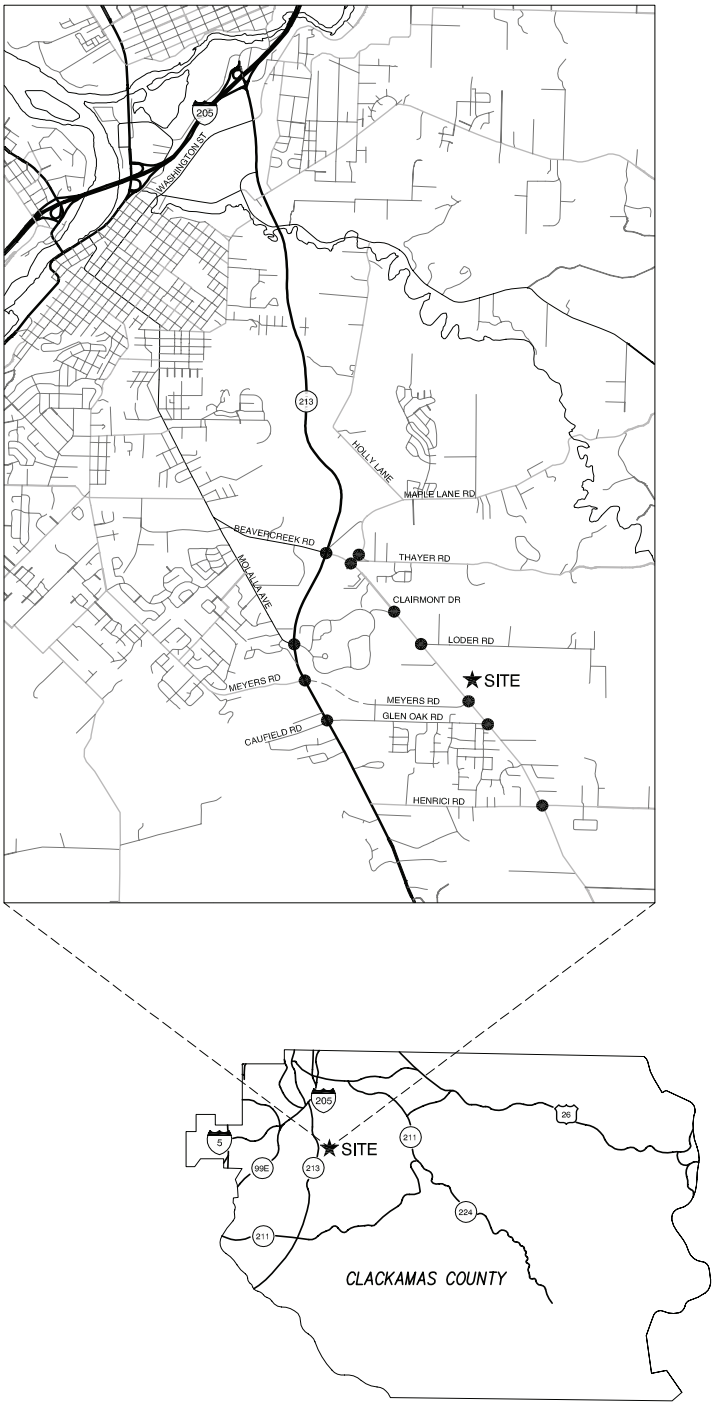
The *City of Oregon City Transportation System Plan* (TSP, Reference 1) and its subsequent amendments were reviewed to identify potential plan considerations affecting the subject property and its supporting transportation system. In addition, due to the history of this area, unadopted but proposed TSP revisions were reviewed to ensure that the proposed rezone project will continue to support the City, County, and ODOT planning efforts should the pending DLCD remand conditions be satisfied.

The proposed rezone for this parcel was previously contemplated and locally approved as part of the overall *Beavercreek Road Concept Plan* (Reference 2), which was completed in 2008. This master plan effort encompassed a 453-acre site within the Oregon City urban growth boundary that had retained its previous Clackamas County *Exclusive Farm Use* (EFU) zoning. Plans for the neighborhood include a diverse mix of retail, residential, and employment uses that would be connected with open space, trails, and green streets. The intent of the plan is to link Clackamas Community College, Oregon City High School, and the adjacent neighborhoods.

Subsequent to adoption by the City, the overall *Beavercreek Road Concept Plan* was remanded by DLCD for non-transportation related reasons, preventing plan adoption into the City's TSP and also preventing plans to legislatively rezone affected properties from their current County designations.

The subject parcel (refer to Figure 2), was identified for MUC zoning within the Concept Plan and was included under the Mixed Employment Village designation. As part of the Concept Plan, it was assumed that the overall Mixed Employment Village would contain a Floor Area Ratio (FAR) of 0.44 based on the net acres, which was identified as a reduction from gross acres of 20 percent to account for easements and roadways[2].

[2] It was noted that of the 26 acres identified as part of the overall Mixed Employment Village, the subject 9.73-acre parcel contains both the Meyers Road extension (identified as a *Collector* Roadway) and the natural gas easement, encompassing a higher proportion of the unbuildable area within the *Mixed Employment Village* than that averaged over the full 26 acres.



LEGEND

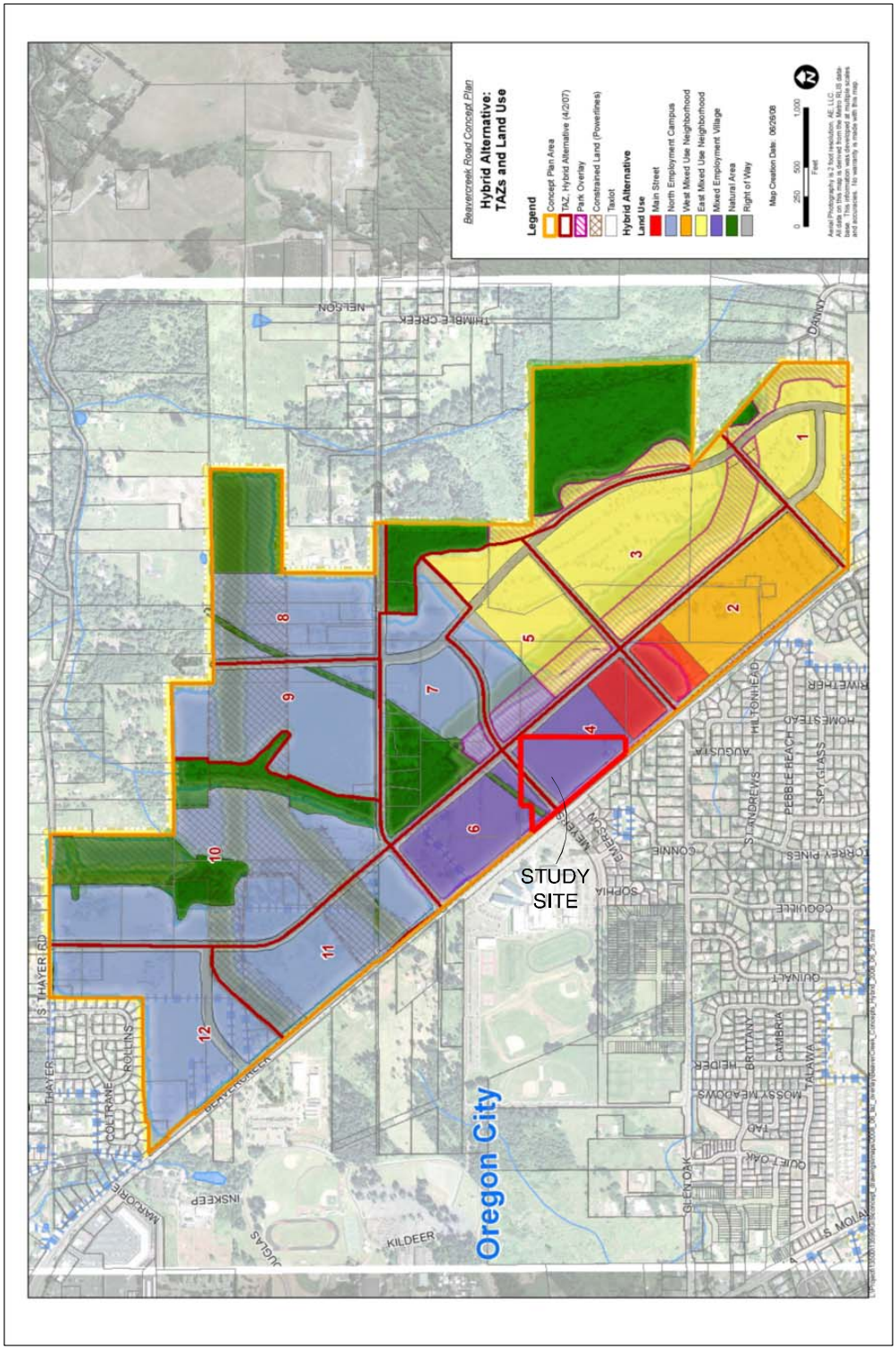
● - STUDY INTERSECTIONS

SITE VICINITY MAP
OREGON CITY, OREGON

FIGURE 1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:57pm - mbell Layout Tab: Fig01



K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 3:08pm - mbell Layout Tab: Fig02

BEAVERCREEK CONCEPT PLAN AND PARCEL LOCATION
OREGON CITY, OREGON

FIGURE 2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Several other land use and transportation studies of the Oregon City area have been prepared that also serve as resources to this proposed plan amendment. Among them are the *Park Place Concept Plan* (Reference 3), the *Highway 213 Urban Corridor Design Study* (Reference 4), and the *OR 213: I-205 - Redland Rd O'Xing* (Reference 5) design study. Of these studies, the *Park Place Concept Plan* is not adopted and the 2020 horizon year of the adopted *Oregon City Transportation System Plan,* while applicable to City facilities, does not meet the required 15-year minimum planning horizon for ODOT facilities. The *OR 213: I-205 - Redland Rd O'Xing* contains the most recent, up-to-date, and endorsed set of traffic volume forecasts that were approved by ODOT, Metro, Clackamas County, and Oregon City for the OR 213 segment between I-205 and Redland Road; however, its study boundaries do not extend south of Redland Road.

Project scoping discussions with City and ODOT staff led to the agreement that the horizon analysis presented in this technical memorandum consider conditions in year 2027, consistent with the *Beavercreek Road Concept Plan*. The 2027 future conditions provide the longest planning period of all of the applicable planning efforts in the study area, and will continue to be consistent with previous planning efforts should the *Beavercreek Road Concept Plan* remand be addressed.

EXISTING TRANSPORTATION INFRASTRUCTURE

The existing transportation infrastructure assessment is provided herein to assist the City with the planning and prioritization of maintenance and infrastructure improvements within the study area. The existing conditions analysis is intended to identify current multi-modal connectivity and provisions affecting the study area roadways and infrastructure.

Roadway Facilities

As illustrated in Figure 2, Beavercreek Road borders the site to the west, and the future eastern extension of Meyers Road will bisect the site. Because a site plan application is not available as part of the zone change application, site access locations and connectivity needs are not known.

Oregon City High School is located to the west on the opposite side of Beavercreek Road, and developed residential neighborhoods are located south of the school. Rural land uses currently exist east of the study site, along with wetland and sensitive lands associated with the Thimble Creek Tributary. Table 1 summarizes the primary roadways within the study area.

Table 1
Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification	Number of Lanes	Posted Speed (miles per hour)	Sidewalks	Bicycle Lanes	On-Street Parking
Oregon 213	District Highway/ Expressway	3-5 Lanes	45	Partial[1]	Yes	No
Beavercreek Road	Major Arterial	2-5 Lanes	35-45 [2]	Partial[1]	Partial	No
Molalla Avenue	Major Arterial	3-Lanes	35	Yes	Yes	No
Meyers Road	Collector	3-Lanes	30	Yes	Yes	Yes
Henrici Road	Not classified	2-Lanes	40	No	No	No
Glen Oak Road	Collector	2-Lanes	35	Partial[1]	No	No
Loder Road	Not classified	2-Lanes	25	No	No	No

[1] Roadway infrastructure generally exists where frontage improvements have been provided.
[2] Beavercreek Road is posted with a 35 mph speed limit between OR 213 and Clairmont Drive and transitions to 45 mph south of Clairmont Drive. A 20 mph school zone is posted along the roadway near the Oregon City High School.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are currently provided within the northern portion of the study area where frontage improvements have been completed. There are missing sidewalk and bicycle lane segments along many of the surrounding roadways. Plans for the study area roadways anticipate completion of sidewalk segments as part of private development and roadway enhancement projects, as well as provision of bicycle lanes in conjunction with roadway upgrades to serve the anticipated urban development.

Pedestrian and bicycle facilities are generally not available in the southern portion of the study area. Loder Road and Henrici Road are within the City's Urban Growth Boundary, but at the time of the City's adopted TSP were still under Clackamas County jurisdiction. Accordingly, these facilities are more rural in character and generally allow higher travel speeds.

Within the immediate site vicinity, sidewalks and bicycle lanes are provided on Meyers Road west of Beavercreek Road and along the Oregon City High School site frontage. No sidewalks are provided along the study site frontage or the properties to the north and south of it, though a northbound bicycle lane is provided along Beavercreek Road.

Transit Facilities

No fixed route transit service is currently provided along Beavercreek Road to the site. The nearest transit service is located at Clackamas Community College (CCC) to the north and west of the site. TriMet provides three transit routes to the college (Reference 6). These routes are Route 32: *Oatfield*; Route 33: *McLoughlin*; and, Route 99: *McLoughlin Express*, all of which begin or end their routes at the campus. Each transit line provides service between CCC and downtown Portland, and includes scheduled stops at the Oregon City Transit Center and Milwaukie Transit Center.

APPLICABLE ROADWAY PERFORMANCE STANDARDS

Intersection performance thresholds vary throughout the study area based on the roadway jurisdiction. Oregon City performance requirements are included within the City's TSP, and identify that a Level of Service (LOS) "D" or higher should be maintained at all signalized intersections along with a volume-to-capacity (V/C) ratio less than 1.0, and Level of Service "E" or better be maintained at unsignalized intersections[3]. ODOT mobility standards included within the *Oregon Highway Plan* (Reference 7) require a volume-to-capacity ratio of less than 0.99 along OR 213 during the 30th highest design hour.

Table 2 presents a summary of the study area intersections, roadway jurisdiction, and relevant performance standards.

Table 2 Summary of Intersection Performance Standards

Intersection	Roadway Jurisdiction	Traffic Control	Performance Standard
OR 213/ Beavercreek Road	ODOT	Signalized	V/C < 0.99
OR 213/ Molalla Avenue	ODOT	Signalized	V/C < 0.99
OR 213/ Meyers Road	ODOT	Signalized	V/C < 0.99
OR 213/ Glen Oak Road	ODOT	Signalized	V/C < 0.99
Thayer Road/ Maple Lane Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Maplelane Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Clairmont Drive	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Loder Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Meyers Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Glen Oak Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Henrici Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0

V/C: Volume-to-Capacity Ratio
LOS: level of service

[3] Oregon City standards allow Level of Service "E" or better for the poorest operating approach at unsignalized intersections if no movement serving more than 20 peak hour vehicles is operating at Level of Service "F."

TRANSPORTATION PLANNING RULE COMPLIANCE

The applicable criteria for zone change analyses are found within Oregon Administrative Rule (OAR) 660-12-0060, also known as the Transportation Planning Rule (TPR, Reference 8). The TPR requires that any changes to the adopted and recognized Transportation System Plan show consistency and compliance with the stated goals of the plan, the development and regular updates of which are a mandated requirement for cities. The overall purpose of Division 12 (Transportation Planning) is to coordinate transportation planning and land use planning to serve statewide, regional, and local needs; provide transportation mode choices; provide safe and convenient multi-modal travel; facilitate freight movement; protect facilities for their planned function; accommodate construction of planned facilities; ensure coordination between service providers; and ensure changes to comprehensive plans are supported by adequately planned transportation facilities.

As previously discussed within the Literature Review section of this memorandum, a review of various planning documents was conducted to ensure consistency with adopted plans and planning efforts pending adoption. Based on this review and discussions with jurisdiction staff, this transportation assessment was prepared to review year 2027 transportation system conditions throughout the study area, consistent with the *Beavercreek Road Concept Plan* (Reference 2).

Reasonably Likely Transportation Improvements

TPR analyses allow the inclusion of planned improvements in the horizon analysis period for which a funding mechanism has been identified. The funding mechanism could be an established local Capital Improvement Project, local projects contained within a City's Systems Development Charge (SDC) list, or funded ODOT Statewide Transportation Improvement Program (STIP) projects.

ODOT Statewide Transportation Improvement Program

Review of the approved ODOT STIP (2008 through 2011, as amended May 21, 2010) identified a project along OR 213 between the I-205 ramps and milepost 0.29 to construct a jughandle intersection at Washington Street (STIP #16985, Estimated Cost: $22,000,000).

Oregon City Transportation System Plan

Several projects along the OR 213 corridor were identified as part of the 2001 TSP within Table 5-5. These were identified as near-term (1-5 years), long-term (6-20 years), and include prioritization, as shown below in Table 3.

Table 3 Oregon City Planned Improvements

Project #	Project Description	Cost and Priority
NEAR-TERM IMPROVEMENTS (1-5 YEARS)		
Intersection Capacity and Operational Improvements		
R-4	OR 213/Beavercreek Road: widening and restriping to provide dual left-turn lanes and two through lanes on all intersection approaches, provision of an exclusive westbound right-turn lane, signal modification, redesign pedestrian and bicycle crossings. *Portions of this project have been constructed including the exclusive westbound right-turn lane, some modifications to the traffic signal hardware, dual left-turns on all but the northbound approach, and pedestrian and bicycle improvements on all but the north leg.*	$5,450,000, Priority #1
Upgrade Street Segments to City Street Standards		
R-12	Beavercreek Road: Clackamas Community College to Glen Oak Road – provide curb, gutter, and sidewalk along both sides of the roadway.	$1,000,000, Priority #3
R-17	Glen Oak Road: Hwy 213 to Beavercreek Road – provide curb, gutter, and sidewalk along both sides	$1,200,000, Priority #3
LONG TERM IMPROVEMENTS (6-20 YEARS)		
Roadway Capacity and Operational Improvements		
R-38	Molalla Avenue to Henrici Road (Project R-38): Provide dual northbound and southbound left-turn lanes at the OR 213/Molalla Avenue intersection; signal modification at OR 213/Molalla Avenue, widen to provide an additional travel lane in each direction from Molalla Avenue to Canyon Ridge Drive; widen to provide standard 3-lane cross-section from Canyon Ridge Drive to Henrici Road.	$2,610,000, Priority #3
R-38	OR 213/Molalla Avenue: Provision of dual northbound and southbound left-turn lanes, signal modification.	$835,000, Priority #3
R-55/ R-38	OR 213/Glen Oak-Caufield Road: Realign intersection offset, signalization, provision of exclusive EB and WB LT lanes.	$550,000, Priority #3
R-56/ R-38	OR 213/Henrici Road: Signalization, provision of exclusive WB LT and RT lanes.	$300,000, Priority #3
R-69	Beavercreek Road/Glen Oak Road: Signalization, provision of an exclusive NB RT lane.	$349,000, Priority #3
R-105	OR 213/Beavercreek Road (R-105): Single point diamond grade-separated interchange improvement as described within the OR 213 corridor study.	$20,000,000, Priority "B".
New Roadways based on Growth, Development, Enhanced Connectivity, and Operations		
R-98	Meyers Road from OR 213 to Beavercreek Road (R-98): East-West extension of Meyers Road – Collector	$N/A, Priority "B"

While a range of local improvement needs have been previously identified throughout the study area as part of the City's 2001 TSP (and subsequent plans), funding of the majority of these improvements is not considered "Reasonably Likely" as these projects are located along ODOT facilities and not included on the current STIP list. Based on discussions with City and ODOT Region 1 staff, no other improvements to OR 213 were assumed to be reasonably funded for the purposes of this rezone analysis.

Among the City-maintained study intersections along Beavercreek Road, the long-term analysis assumes signalization of the Glen Oak Road/Beavercreek Road intersection. Figure 3 illustrates the assumed lane configurations and traffic control devices at the study intersections.

ASSUMED 2027 LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
WITHOUT MEYERS ROAD EXTENSION
OREGON CITY, OREGON

FIGURE 3

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Existing Zoning Conditions (Future 2027 Horizon Period)

An analysis was conducted for the year 2027 horizon year. The existing zoning assessment was prepared to identify how the study area's transportation system operates in the horizon year with build-out of the subject parcel as currently zoned (without the impact of the proposed rezone). This analysis provides a basis for comparison to transportation conditions with the proposed zone change.

Future forecast traffic volumes for the *OR 213: I-205 - Redland Rd O'Xing (Oregon City)* were based on modeling data provided by METRO. This modeling was completed in 2008 while both concept planning efforts were underway in Oregon City and regional center developments were being considered in the Clackamette Cove area and on the retired Rossman Landfill site. To ensure an accounting of the Beavercreek Road concept planning, the METRO model projections for growth showed significant mixed-use development (well beyond densities allowed within the EFU zoning) within the Transportation Analysis Zones (TAZ) that include the subject property. Accordingly, a portion of the Beavercreek Road Concept Plan, primarily build-out within the TAZs that include the subject property, was assumed and accounted for within the volume projections used in all recent OR 213 analysis for the highway segment between I-205 and Redland Road.

For intersections south of Redland Road, year 2027 volume projections through the *Beavercreek Road Concept Plan* "No-Build" conditions were utilized to provide an accurate assessment of future year 2027 traffic volumes. These forecast volumes were jointly developed with City, ODOT, and METRO staff as part of the previous planning efforts.

The subject property has been annexed into the City of Oregon City and includes a Comprehensive Plan designation of "Future Urban", but with the remand of the *Beavercreek Road Concept Plan,* it was assumed that the current zoning is essentially "capped" based on County provisions. Section 400 of the County's Development Code was obtained to identify the allowable uses within the existing EFU zoning, which indicates that the intent of EFU zoning is to allow low-intensity rural and agricultural uses. Minimum allowable lot sizes within the EFU zoning could allow for only a single residence on the subject parcel. Accordingly, the base scenario for the existing zoning assumes one single family dwelling unit within the overall 9.73-acre parcel.

Intersection Level-of-Service Analysis

Consistent with the *Beavercreek Road Concept Plan*, Figure 4 illustrates the weekday p.m. peak hour traffic volumes inclusive of regional growth and potential site build-out with the existing EFU zoning. These volumes were used to conduct an operational analysis at each of the study intersections to determine the horizon year levels of service.

As shown in Figure 4, intersections along OR 213 between Beavercreek Road and Meyers Road are forecast to exceed ODOT mobility standards in 2027 while all other intersections are shown to operate acceptably. By way of comparison, the *Beavercreek Road Concept Plan* identified these

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HORIZON YEAR EXISTING ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 4

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same system needs. Attachment "A" contains the horizon period existing zoning intersection operations analysis worksheets.

Proposed Zoning Conditions (Future Horizon Period)

The Mixed Use Corridor with Moderate Density Option (MUC-1) zoning category provides for a medium density mix of commercial, office, and residential uses. The purpose of the MUC zoning is to encourage development along selected sections of transportation corridors within Oregon City such as Beavercreek Road. The MUC-1 designation allows buildings up to three-stories in height and requires a minimum landscape area of 20 percent.

Allowable land uses within the MUC zoning include the following:

- Offices, including finance, insurance, real estate and government;
- Residential units, multi-family;
- Restaurants, eating and drinking establishments without a drive through; and
- Retail trade, including grocery, pharmacy, specialty stores, etc. provided the same business does not exceed 60,000 square-feet.

As shown in Figure 2, the subject property is located entirely within the area designated as Mixed Employment Village by the Beavercreek Road Concept Plan. A Floor Area Ratio (FAR) of 0.44 was identified under the Mixed Employment Village land use category within this plan. The 0.44 FAR was applied to the overall Mixed Employment Village Area lands and does not take into account the geometric constraints, 50-foot utility easements, or the planned Meyers Road extension that will uniquely impact the study site parcel, effectively reducing the amount of buildable space by approximately 22 percent. Applying a 22 percent reduction to the overall parcel area, site development could reasonably accommodate approximately 145,500 square-feet of total building space.

While a wide variety of land uses are available within the MUC-1 zoning, the potential building area was proportioned between office, commercial and residential uses consistent with the ratios shown in the *Beavercreek Road Concept Plan*, resulting in a development scenario that includes approximately 30 condominium units, 20,000 square-feet of retail uses, and 80,000 square-feet of office uses. *City MUC zoning provisions are included in Attachment "B."*

Trip Generation

Trip generation estimates were prepared for both the EFU and MUC zoning scenarios to determine the incremental trip generation potential during the critical weekday evening commute period (one hour between 4:00 and 6:00 p.m.). Trip generation estimates were prepared based on data contained within the Institute of Transportation Engineer's (ITE's) standard reference *Trip Generation, 8th Edition* (Reference 9).

The *Beavercreek Road Concept Plan* used data from ITE's *Trip Generation Handbook, 2nd Edition* (Reference 10), to determine the internal trip potential between the various land uses, which was

identified as three percent of the overall trips. This same methodology was applied to the TPR scenario, resulting in a six percent trip reduction. It should be noted that multi-modal and rerouted trips assumed in the Concept Plan were not included as part of this rezone project as it is unlikely these reductions would be experienced with the development of only a single parcel. Table 4 summarizes the trip generation potential of the two scenarios.

Table 4
Development Scenarios Trip Generation Potential

Land Use	ITE Code	Size	Weekday PM Peak Hour		
			Total	In	Out
Existing EFU Zoning					
Single Family Detached Housing	210	1 Unit	1	1	0
Proposed MUC Zoning					
Shopping Center *Internal Tips (6%)* *Pass-by Trips (34%)*	820	20,000 SF	75 *(4)* *(24)*	37 *(2)* *(12)*	38 *(2)* *(12)*
Office *Internal Tips (6%)*	710	80,000 SF	119 *(7)*	20 *(1)*	99 *(6)*
Condos/Townhomes *Internal Tips (6%)*	230	30 Units	16 *(1)*	11 *(1)*	5 *(0)*
Net New Trips			174	52	122
Trip Difference (Proposed Zoning – Existing Zoning)					
Trip Difference			173	51	122

As shown in Table 4, future development of the 9.73-acre site with MUC-1 zoning could generate 173 more weekday p.m. peak hour trips than build-out with EFU uses.

Trip Distribution and Trip Assignment

The estimated trip distribution pattern of primary site-generated trips associated with the proposed rezone was obtained from the *Beavercreek Road Concept Plan*, as illustrated in Figure 5. This trip distribution pattern was estimated based on a review of select zone analyses produced by the METRO Sunrise model, as well as existing traffic patterns, local knowledge of the area, and professional judgment.

The incremental increase in site trip generation between the EFU zoning trip generation potential and the proposed MUC zoning trips (as shown in Table 4) during the critical weekday p.m. peak hour was assigned to the roadway network based on the trip distribution patterns and routing, as illustrated in Figure 5. Figure 6 includes a summary of the total additional vehicle trips projected at the study intersections assuming the property is rezoned and developed.

NOTE: NEGATIVE VOLUMES REFLECT PASS-BY TRIPS

ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 5

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HORIZON YEAR PROPOSED ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 6

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Intersection Operations Analysis

The weekday p.m. peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection to determine the horizon year levels of service. As shown, all of the study intersections along OR 213 between Beavercreek Road and Glen Oak Road are forecast to continue to exceed ODOT mobility standards in 2027 and all other study intersections are shown to operate acceptably with the additional site trips under the proposed MUC zoning.

Based on direction from ODOT Region 1 staff, the proposed rezone would be determined to significantly impact a study intersection already in failure (defined as having a volume-to-capacity ratio greater than 0.99) if the volume-to-capacity ratio at the intersection increased by more than 0.01. With this threshold in mind, Table 5 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone.

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

As shown in Table 5, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at both the OR 213/Molalla Avenue intersection and the OR 213/Meyers Road intersection. Thus, the proposed rezone was projected to have a significant affect on two of the four ODOT-maintained study intersections. *Attachment "C" contains the horizon period proposed zoning intersection operations analysis worksheets.*

Assessment of Potential Mitigation Measures

One of the anticipated study area capacity improvements is the extension of Meyers Road between OR 213 and its existing terminus to the east at High School Avenue. Clackamas County Community College is committed to dedicating some of the right-of-way needed for this connection in conjunction with future master plan development. A small number of other property owners control the required right-of-way for the future roadway extension and is expected to extend the future roadway as they further develop land along the roadway.

The future year operations analysis was repeated for the existing and proposed zoning conditions assuming the Meyers Road extension is in place. Figure 7 illustrates the assumed lane

configurations for this scenario, which were developed based on direction from ODOT Region 1 staff. Figure 8 illustrates the corresponding traffic conditions at the study intersections assuming the Meyers Road extension. Figure 9 shows the site-generated trip assignment for the proposed MUC zoning with the Meyers Road extension and Figure 10 illustrates the resultant traffic conditions.

Table 6 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone with the Meyers Road extension in place.

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

As shown in Table 6, with the Meyers Road extension in place, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at only the OR 213/Meyers Road intersection. Further, the proposed rezone results in no change to the intersection volume-to-capacity ratios at the OR 213/Molalla Avenue and OR 213/Glen Oak Road intersections with the Meyers Road Extension in place.

To comply with the TPR, the significant effect at the OR 213/Meyers Road intersection could be mitigated through various alternatives, as provided below.

- The TPR allows the mitigation of significant effects through minor transportation improvements. Installation of a separate westbound right-turn lane along Meyers Road at the intersection reduces the volume-to-capacity ratio to 1.08; an improvement over conditions without the rezone trips (1.13).

- Based on the poor long-term performance at OR 213/Meyers Road the City and ODOT could adopt a plan that would enhance the intersection capacity at the time of initial construction. Intersection improvements needed for the intersection to operate acceptably in 2027 likely include widening OR 213 to become a five-lane cross-section, as identified in the City's 2003 TSP and within the Beavercreek Road Concept Plan. Construction of this roadway cross-section is partially in place where frontage improvements have been completed.

Attachment "D" contains the intersection operations analysis worksheets assuming the Meyers Road extension is in place during the horizon period.

Beavercreek Rezone *June 2010*

ASSUMED LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES WITH MEYERS ROAD EXTENSION OREGON CITY, OREGON

FIGURE 7

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LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

HORIZON YEAR EXISTING ZONING CONDITIONS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 8

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NOTE: NEGATIVE VOLUMES REFLECT PASS-BY TRIPS

ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 9

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HORIZON YEAR PROPOSED ZONING CONDITIONS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 10

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TRANSPORTATION PLANNING RULE COMPLIANCE

OAR Section 660-12-0060 sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 7 summarizes the TPR criteria and their applicability to the proposed rezone application.

Table 7 Summary of Criteria in OAR 660-012-0060

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant affect on transportation facilities.	Yes *See response below*
2	Describes measures for complying with Criteria #1 where a significant effect is identified.	Yes *See response below*
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	No
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes *See response below*
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No (Lands are part of a master plan area)
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No (No concurrent site plan)
7	Outlines requirements for a local street plan, access management plan, or future street plan for commercial areas.	No (Commercial lands are not proposed)
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No (No concurrent site plan)

As shown, there are eight criteria that apply to Plan and Land Use Regulation Amendments. Of these, Criteria #1, #2, and #4 are applicable to the proposed land use action. Applicable sections of these criteria are provided below in italics with a corresponding response shown in standard font.

> *OAR 660-12-0060 (1) Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a transportation facility if it would:*
>
> > *(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);*
> >
> > *(b) Change standards implementing a functional classification system; or*

(c) As measured at the end of the planning period identified in the adopted transportation system plan:

(A) Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;

Response: Based on the incremental traffic increase from *EFU* to *MUC-1* zoning, the functional classification of all the adjacent roadways will not be affected with the proposed zone change.

(B) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan; or

Response: Each of the study intersections along OR 213 performs below the minimum acceptable performance standard in the OHP with the existing zoning.

(C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.

Response: The performance of two study intersections along OR 213 was forecast to be degraded by a volume-to-capacity ratio increase of more than 0.01 with the incremental trips from the proposed rezone. As a result, the proposed rezone was found to have a significant effect on the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road.

OAR 660-12-0060 (2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished through one or a combination of the following:

(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

(d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Local governments

shall as part of the amendment specify when measures or improvements provided pursuant to this subsection will be provided.

Response: The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.

The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213.

OAR 660-12-0060 (4) Determinations under sections (1)-(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.

(a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.

(b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:

(D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.

(e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).

Response: The project team has been coordinating assumed transportation improvements and the study scope extensively with ODOT Region 1 and City of Oregon City staff. This coordination has included written documentation as well as joint meetings with the ODOT, City, and project team staff.

FINDINGS

Based on the analysis presented in this report, the proposed rezone of the 9.73-acre study site from *Future Urban* (FU) zoning to *Mixed-Use Corridor* (MUC) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements assuming provision of the recommended mitigations. Key findings and recommendations from the analysis presented in this report are summarized below.

Findings

- The proposed 9.73-acre rezone from the *Future Urban* zoning to the City's *Mixed-Use Corridor (MUC-1)* zoning was estimated to generate an additional 173 net new weekday p.m. peak hour trips.
- All of the City-maintained study area intersections were forecast to operate acceptably with the existing and proposed zoning in the horizon analysis period.
- All of the OR 213 study intersections were forecast to exceed ODOT mobility standards during 2027 future year weekday p.m. peak hour traffic conditions under the existing zoning.
- The additional trips associated with the proposed rezone were forecast to have an incremental impact on the study intersections and that impact was found to constitute a *Significant Effect* at two locations.
    A. City of Oregon City-maintained study intersections were forecast to continue to operate acceptably.
    B. The intersection volume-to-capacity ratio was forecast to increase by more than 0.01 at the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road with the incremental trips from the proposed rezone. This change represents a significant effect per the thresholds established by ODOT Region 1 staff.
    C. Other ODOT-maintained study intersections along OR 213 were forecast to experience a volume-to-capacity ratio increase not greater than 0.01 and thus were not significantly effected.
- The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.
- The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213 or with the long-term planned improvement of a five-lane cross section extending south through Meyers Road (*Oregon City TSP).*
- The findings listed above are premised on the assumed site-generated trip generation for the MUC-1 zoning.

- Interconnectivity should be reviewed with the future site plan development application(s) (including within the subject parcel) to provide direct and convenient multimodal access to the site.
- The City of Oregon City could elect to approve the proposed rezone by:
    1. Making an interpretation that the extension of Meyers Road from OR 213 to its existing terminus is reasonably funded and finding that the improvement project identified for the Meyers Road/OR 213 intersection in the City's Transportation System Plan includes separate left-turn, through, and right-turn lanes on the westbound (new) approach to OR 213.
    2. Other options available to the City, as appropriate.

Please contact us if you have any questions regarding this zone change analysis.

We trust this letter adequately addresses the traffic impacts associated with the proposed rezone application. Please contact us if you have any questions or comments regarding the contents of this report or the analysis performed.

Sincerely,
KITTELSON & ASSOCIATES, INC.

CSB FOR
Joe Bessman, PE, PTOE
Senior Engineer

Chris Brehmer
Chris Brehmer, PE
Principal Engineer

Cc: Dan Drentlaw, City of Oregon City
John Replinger, PE, Replinger & Associates, LLC
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REGISTERED PROFESSIONAL ENGINEER 62836PE OREGON JULY 11, 2000 CHRISTOPHER LYNN BREHMER
Christopher Lynn Brehmer
SIGNED 6-21-10
Expires: 12-31-11

ATTACHMENTS:

A. Horizon Year Existing Zoning Operations Analysis Worksheets

B. City MUC Zoning Code Provisions

C. Horizon Year Proposed Zoning Operations Analysis Worksheets

D. Horizon Year Operations Analysis Worksheets with Meyers Road Extension

REFERENCES:

1. City of Oregon City. *City of Oregon City Transportation System Plan.* 2001.
2. City of Oregon City. *Beavercreek Road Concept Plan.* August 2008.
3. City of Oregon City. *Park Place Concept Plan.* March 12, 2008.
4. Kittelson & Associates, Inc. *Highway 213 Urban Corridor Design Study.* June 2000.
5. Kittelson & Associates, Inc. *OR 213: I-205 - Redland Rd O'Xing.* 2009.
6. TriMet. http://trimet.org/ June 2010.
7. Oregon Department of Transportation. *1999 Oregon Highway Plan.* March 1999.
8. Department of Land Conservation and Development. Oregon Administrative Rule 660-12-0060, http://arcweb.sos.state.or.us/banners/rules.htm.
9. Institute of Transportation Engineers. *Trip Generation: 8th Edition*. 2008.
10. Institute of Transportation Engineers. *Trip Generation Handbook: 2nd Edition*. 2004.

Attachment A
Horizon Year Existing
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	57	265	7	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m95	#602	m38	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.1	25.9	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	86.3	58.8	31.0	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	C	F	F	C
Approach Delay (s)		132.1			97.6			56.6			77.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	88.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

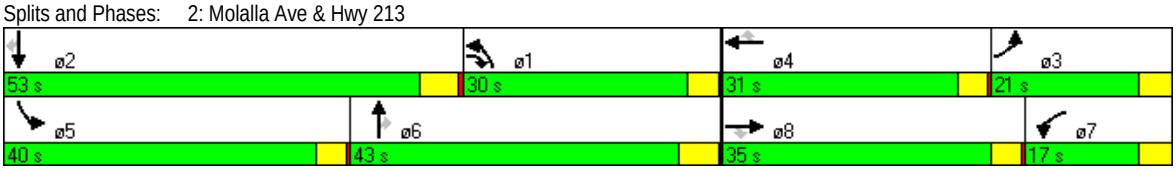
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.89	1.53	0.79	0.66	0.97	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	425	~501	230	0	308	260	96	~467	~847	12
Queue Length 95th (ft)	#273	305	544	#778	334	97	m#444	m306	m149	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.89	1.53	0.72	0.64	0.97	0.58	0.40	1.05	1.20	0.25

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	551	405	279	80	342	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.19	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.84	1.53	0.79	0.27	0.97	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.4	57.3	52.0	46.7	53.5	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.11	1.20	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	9.6	256.0	10.9	0.5	30.3	1.6	1.2	28.4	90.3	0.0
Delay (s)	61.3	62.4	47.0	313.3	62.9	47.2	88.8	46.4	45.1	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		53.7			149.0			58.7			102.2	
Approach LOS		D			F			E			F	

Intersection Summary				
HCM Average Control Delay	93.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	107.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	325	250	775	1800	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				325	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	342	263	816	1895	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	342	263	816	1895	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	
Control Delay	89.9	33.9	102.3	11.5	22.9	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	33.9	102.3	11.5	22.9	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	218	232	315	911	3	
Queue Length 95th (ft)	#555	315	#409	425	m344	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	977	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	325	250	775	1800	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	342	263	816	1895	549
RTOR Reduction (vph)	0	6	0	0	0	147
Lane Group Flow (vph)	395	336	263	816	1895	402
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.15	0.44	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.53	0.96	0.61	1.00	0.48
Uniform Delay, d1	51.6	32.0	56.6	9.1	30.3	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.54	0.04
Incremental Delay, d2	37.3	0.8	44.1	2.1	5.3	0.2
Delay (s)	88.9	32.8	100.8	11.2	21.8	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.9			33.0	17.1	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.978		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1858	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.544			0.690		0.950			0.950		
Satd. Flow (perm)	0	1010	0	0	1311	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				179		5			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	234	179	26	859	0	365	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.76			0.91	0.39	0.20	0.92		0.92	1.45	
Control Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			202	0	22	673		315	~2292	
Queue Length 95th (ft)		#236			#358	64	53	#964		#498	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		216			273	470	152	973		418	1276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.72			0.86	0.38	0.17	0.88		0.87	1.45	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 130.2	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1859	1576	1787	1824		1805	1835	
Flt Permitted		0.54			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1011			1311	1576	1787	1824		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
RTOR Reduction (vph)	0	6	0	0	0	144	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	234	35	26	857	0	365	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		24.6			24.6	24.6	5.8	67.5		27.7	89.4	
Effective Green, g (s)		25.6			25.6	25.6	6.8	68.5		28.7	90.4	
Actuated g/C Ratio		0.19			0.19	0.19	0.05	0.52		0.22	0.69	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		196			255	306	92	948		393	1259	
v/s Ratio Prot							0.01	c0.47		0.20	c1.01	
v/s Ratio Perm		0.15			c0.18	0.02						
v/c Ratio		0.77			0.92	0.11	0.28	0.90		0.93	1.47	
Uniform Delay, d1		50.3			52.1	43.8	60.2	28.7		50.5	20.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.3			34.7	0.2	1.7	11.8		27.9	214.9	
Delay (s)		66.6			86.8	43.9	61.8	40.4		78.4	235.6	
Level of Service		E			F	D	E	D		E	F	
Approach Delay (s)		66.6			68.2			41.0			209.7	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	147.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	131.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

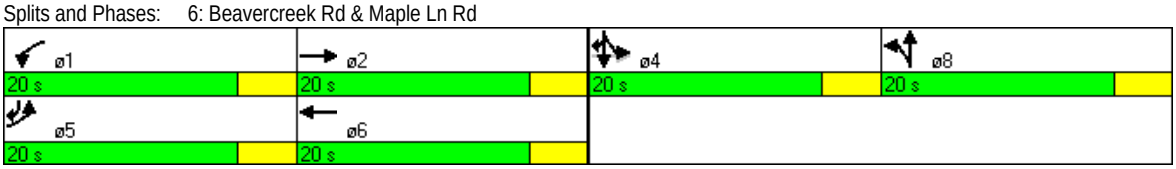
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.993	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1869	0
Flt Permitted	0.757						0.112					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	213	1881	0	1900	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102									7	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1329	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.81	
Control Delay	41.7	0.5					3.0	3.4			11.4	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.0	3.4			11.4	
Queue Length 50th (ft)	29	0					1	90			338	
Queue Length 95th (ft)	59	0					5	178			#923	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	394					186	1645			1635	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.81	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 83.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1869	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1564	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.0	
Delay (s)	43.6	36.8					1.9	2.9			9.8	
Level of Service	D	D					A	A			A	
Approach Delay (s)		42.0			0.0			2.9			9.8	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.977	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1856	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1856	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			23	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1282	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.87	
Control Delay	44.2	13.8	51.0	3.8	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	18.9	
Queue Length 50th (ft)	54	0	14	85	342	
Queue Length 95th (ft)	95	23	39	163	#1023	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1478	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1857	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1857	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	216
RTOR Reduction (vph)	0	26	0	0	6	0
Lane Group Flow (vph)	97	3	25	656	1276	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1407	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.69	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.91	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	10.1	
Delay (s)	44.4	38.1	110.5	3.2	18.8	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	18.8	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment B
City MUC Zoning Code Provisions

Oregon City, Oregon, Code of Ordinances >> Title 17 - ZONING >> Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT >>

Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT*

Editor's note—

Ord. No. 08-1014, adopted Jul. 1, 2009, repealed Chapter 17.29 in its entirety and enacted new provisions to read as herein set out. Prior to amendment, Chapter 17.29 pertained to similar subject matter. See Ordinance Disposition List for derivation.

Sections:

17.29.010 - Designated.
17.29.020 - Permitted uses—MUC-1 and MUC-2.
17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.
17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.
17.29.050 - Dimensional standards—MUC-1.
17.29.060 - Dimensional standards—MUC-2.
17.29.070 - Floor area ratio (FAR).

17.29.010 - Designated.

The Mixed-Use Corridor (MUC) District is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high-density residential, office, and small-scale retail uses are encouraged in this District. Moderate density (MUC-1) and high density (MUC-2) options are available within the MUC zoning district. The area along 7th Street is an example of MUC-1, and the area along Warner-Milne Road is an example of MUC-2.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.020 - Permitted uses—MUC-1 and MUC-2.

A. Banquet, conference facilities and meeting rooms;

B. Bed and breakfast and other lodging facilities for up to ten guests per night;

C. Child care centers and/or nursery schools;

D. Indoor entertainment centers and arcades;

E. Health and fitness clubs;

F. Medical and dental clinics, outpatient; infirmary services;

G. Museums, libraries and cultural facilities;

H. Offices, including finance, insurance, real estate and government;

I. Outdoor markets, such as produce stands, craft markets and farmers markets that are operated on the weekends and after six p.m. during the weekday;

J. Postal services;

K. Parks, playgrounds, play fields and community or neighborhood centers;

L. Repair shops, for radio and television, office equipment, bicycles, electronic equipment, shoes and small appliances and equipment;

N. Residential units, multi-family;

O. Restaurants, eating and drinking establishments without a drive through;

P. Services, including personal, professional, educational and financial services; laundry and dry-cleaning;

Q. Retail trade, including grocery, hardware and gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores, and similar, provided the maximum footprint for a stand alone building with a single store or multiple buildings with the same business does not exceed sixty thousand square feet;

R. Seasonal sales, subject to Oregon City Municipal Code Section 17.54.060;

S. Assisted living facilities; nursing homes and group homes for over fifteen patients;

T. Studios and galleries, including dance, art, photography, music and other arts;

U. Utilities: Basic and linear facilities, such as water, sewer, power, telephone, cable, electrical and natural gas lines, not including major facilities such as sewage and water treatment plants, pump stations, water tanks, telephone exchanges and cell towers.

V. Veterinary clinics or pet hospitals, pet day care.

W. Home occupations;

X. Research and development activities;

Y. Temporary real estate offices in model dwellings located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;

Z. Residential care facility.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.

The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:

A. Ancillary drive-in or drive-through facilities;

B. Emergency service facilities (police and fire), excluding correctional facilities;

C. Gas stations;

D. Outdoor markets that do not meet the criteria of Section 17.29.020H.;

E. Public utilities and services including sub-stations (such as buildings, plants and other structures);

F. Public and/or private educational or training facilities;

G. Religious institutions;

H. Retail trade, including gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores and any other use permitted in the neighborhood, historic or limited commercial districts that have a footprint for a stand alone building with a single store in excess of sixty thousand square feet in the MUC-1 or MUC-2 zone;

I. Hotels and motels, commercial lodging;

J. Hospitals;

K. Parking structures and lots not in conjunction with a primary use;

L. Passenger terminals (water, auto, bus, train).

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.

The following uses are prohibited in the MUC district:

A. Distributing, wholesaling and warehousing;

B. Outdoor sales or storage;

C. Correctional facilities;

D. Heavy equipment service, repair, sales, storage or rental[2] (including but not limited to construction equipment and machinery and farming equipment);

E. Kennels;

E. Motor vehicle and recreational vehicle sales and incidental service;

F. Motor vehicle and recreational vehicle repair/service;

G. Outdoor sales or storage;

H. Self-service storage facilities.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.050 - Dimensional standards—MUC-1.

A. Minimum lot areas: None.

B. Maximum building height: Forty feet or three stories, whichever is less.

C. Minimum required setbacks if not abutting a residential zone: None.

D. Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every one foot of building height over thirty-five feet.

E. Maximum allowed setbacks.

1. Front yard: Five feet (may be extended with Site Plan and Design Review (Section 17.62.055).
2. Interior side yard: None.
3. Corner side setback abutting street: Thirty feet provided the Site Plan and Design Review requirements of Section 17.62.055 are met.
4. Rear yard: None.

F. Maximum lot coverage of the building and parking lot: Eighty percent.

G. Minimum required landscaping (including landscaping within a parking lot): Twenty percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.060 - Dimensional standards—MUC-2.

A. Minimum lot area: None.

B. Minimum floor area ratio: 0.25.

C. Minimum building height: Twenty-five feet or two stories except for accessory structures or buildings under one thousand square feet.

D. Maximum building height: Sixty feet.

E. Minimum required setbacks if not abutting a residential zone: None.

F.

Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every two feet of building height over thirty-five feet.

G. Maximum Allowed Setbacks.

1. Front yard: Five feet (may be expanded with Site Plan and Design Review Section 17.62.055).

2. Interior side yard: None.

3. Corner side yard abutting street: Twenty feet provided the site plan and design review requirements of Section 17.62.055 are met.

4. Rear yard: None.

H. Maximum site coverage of building and parking lot: Ninety percent.

I. Minimum landscaping requirement (including parking lot): Ten percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.070 - Floor area ratio (FAR).

Floor area ratios are a tool for regulating the intensity of development. Minimum FARs help to achieve more intensive forms of building development in areas appropriate for larger-scale buildings and higher residential densities.

A. Standards.

1. The minimum floor area ratios contained in 17.29.050 and 17.29.060 apply to all non-residential and mixed-use building development, except stand-alone commercial buildings less than ten thousand square feet in floor area.

2. Required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs.

3. An individual phase of a project shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, that the required density for the project will be achieved at project build out.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Attachment C
Horizon Year Proposed
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	57	264	7	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m95	#602	m38	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.1	25.9	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	86.3	58.7	31.0	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	C	F	F	C
Approach Delay (s)		132.6			102.5			56.5			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	89.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

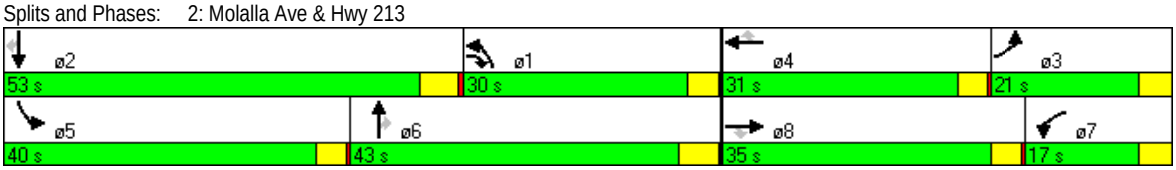
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.91	1.53	0.79	0.66	1.06	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	441	~501	230	0	~366	259	96	~467	~847	12
Queue Length 95th (ft)	#273	305	563	#778	334	97	m#513	m305	m150	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.91	1.53	0.72	0.64	1.06	0.58	0.40	1.05	1.20	0.25

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	564	405	279	80	376	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.21	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.86	1.53	0.79	0.27	1.06	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.9	57.3	52.0	46.7	54.0	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.09	1.17	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	11.3	256.0	10.9	0.5	56.2	1.6	1.1	28.4	90.3	0.0
Delay (s)	61.3	62.4	49.1	313.3	62.9	47.2	114.6	45.8	44.0	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		54.8			149.0			67.2			102.2	
Approach LOS		D			F			E			F	

Intersection Summary				
HCM Average Control Delay	95.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	108.9%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	330	262	807	1813	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				323	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	347	276	849	1908	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	347	276	849	1908	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	
Control Delay	89.9	34.1	113.3	12.1	24.8	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	34.1	113.3	12.1	24.8	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	222	~249	339	~920	3	
Queue Length 95th (ft)	#555	321	#435	458	m367	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	976	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Meyers Rd & Hwy 213

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	330	262	807	1813	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	347	276	849	1908	549
RTOR Reduction (vph)	0	6	0	0	0	146
Lane Group Flow (vph)	395	341	276	849	1908	403
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.16	0.46	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.54	1.01	0.63	1.00	0.49
Uniform Delay, d1	51.6	32.1	57.0	9.4	30.5	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.55	0.04
Incremental Delay, d2	37.3	0.9	57.3	2.3	6.8	0.2
Delay (s)	88.9	33.0	114.3	11.7	23.6	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.8			36.9	18.6	
Approach LOS	E			D	B	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.977		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1856	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.538			0.676		0.950			0.950		
Satd. Flow (perm)	0	999	0	0	1284	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				225		6			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	246	225	26	864	0	383	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.74			0.94	0.45	0.20	0.94		0.95	1.46	
Control Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			216	0	22	679		334	~2292	
Queue Length 95th (ft)		#238			#387	70	53	#974		#534	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		211			264	503	150	962		413	1263	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.74			0.93	0.45	0.17	0.90		0.93	1.46	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 131.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1856	1576	1787	1823		1805	1835	
Flt Permitted		0.54			0.68	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		998			1285	1576	1787	1823		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
RTOR Reduction (vph)	0	6	0	0	0	180	0	3	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	246	45	26	861	0	383	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		25.9			25.9	25.9	5.8	66.7		28.5	89.4	
Effective Green, g (s)		26.9			26.9	26.9	6.8	67.7		29.5	90.4	
Actuated g/C Ratio		0.20			0.20	0.20	0.05	0.51		0.22	0.68	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		202			260	319	91	927		400	1246	
v/s Ratio Prot							0.01	c0.47		0.21	c1.01	
v/s Ratio Perm		0.15			c0.19	0.03						
v/c Ratio		0.74			0.95	0.14	0.29	0.93		0.96	1.48	
Uniform Delay, d1		49.9			52.4	43.6	60.8	30.5		51.2	21.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.8			40.9	0.2	1.7	15.0		33.7	221.8	
Delay (s)		63.7			93.3	43.8	62.5	45.5		84.9	243.1	
Level of Service		E			F	D	E	D		F	F	
Approach Delay (s)		63.7			69.7			46.0			216.0	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	150.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	133.1	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

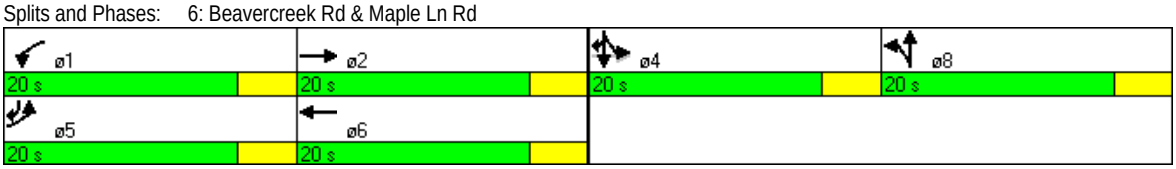
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	206	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	140		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	175	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.53		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.7		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.852			0.993			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1632	0	1805	1619	0	1805	1869	0	1805	1869	0
Flt Permitted	0.715			0.746			0.078			0.325		
Satd. Flow (perm)	1358	1632	0	1417	1619	0	148	1869	0	618	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			7			8	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	17	0	76	65	0	11	771	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.33	0.08		0.44	0.26		0.09	0.51		0.06	0.87	
Control Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Length 50th (ft)	24	0		34	0		1	103		3	357	
Queue Length 95th (ft)	55	18		73	33		7	217		11	#918	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	275	343		287	379		120	1522		503	1522	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.05		0.26	0.17		0.09	0.51		0.06	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 79.2	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1805	1619		1805	1870		1805	1869	
Flt Permitted	0.71	1.00		0.75	1.00		0.08	1.00		0.32	1.00	
Satd. Flow (perm)	1358	1632		1418	1619		147	1870		617	1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
RTOR Reduction (vph)	0	14	0	0	57	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	3	0	76	8	0	11	770	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Effective Green, g (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	171		149	170		117	1487		491	1486	
v/s Ratio Prot		0.00			0.00			0.41			c0.71	
v/s Ratio Perm	0.04			c0.05			0.07			0.05		
v/c Ratio	0.37	0.02		0.51	0.05		0.09	0.52		0.07	0.89	
Uniform Delay, d1	33.3	32.1		33.9	32.2		1.8	2.9		1.8	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.0		2.9	0.1		1.6	1.3		0.3	8.3	
Delay (s)	35.0	32.1		36.8	32.3		3.4	4.1		2.0	14.0	
Level of Service	C	C		D	C		A	A		A	B	
Approach Delay (s)		34.3			34.7			4.1			13.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.972	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1847	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1847	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			29	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	29	25	659	1074	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	29	25	659	1351	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.54	0.13	0.32	0.44	0.97	
Control Delay	45.8	13.3	52.3	4.6	31.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.8	13.3	52.3	4.6	31.4	
Queue Length 50th (ft)	67	0	14	94	456	
Queue Length 95th (ft)	114	23	40	182	#1143	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	313	304	78	1499	1398	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.39	0.10	0.32	0.44	0.97	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 92.3	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1847	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1847	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	29	25	659	1074	277
RTOR Reduction (vph)	0	25	0	0	8	0
Lane Group Flow (vph)	122	4	25	659	1343	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5	1.7	75.2	69.5	
Effective Green, g (s)	11.5	11.5	1.7	75.2	69.5	
Actuated g/C Ratio	0.12	0.12	0.02	0.79	0.73	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	219	196	32	1509	1356	
v/s Ratio Prot	c0.07		0.01	c0.35	c0.73	
v/s Ratio Perm		0.00				
v/c Ratio	0.56	0.02	0.78	0.44	0.99	
Uniform Delay, d1	39.2	36.6	46.3	3.1	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.0	74.5	0.9	22.3	
Delay (s)	42.3	36.7	120.9	4.0	34.6	
Level of Service	D	D	F	A	C	
Approach Delay (s)	41.2			8.3	34.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment D
Horizon Year Operations Analysis Worksheets with Meyers Road Extension

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	58	252	6	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m98	#602	m46	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.35	0.82	1.20	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.2	26.2	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	90.0	65.3	41.8	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	D	F	F	C
Approach Delay (s)		132.1			97.6			63.5			77.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	89.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

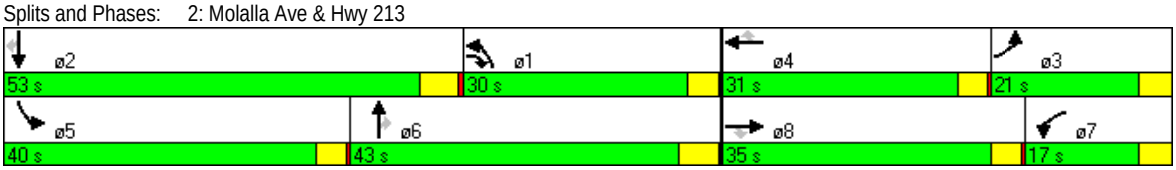
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			27			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.10	0.58	0.80	0.52	0.97	0.59	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~610	133	230	0	281	214	20	228	~1024	13
Queue Length 95th (ft)	#273	225	#779	#223	334	75	m241	m220	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.10	0.58	0.72	0.50	0.97	0.59	0.13	0.66	1.26	0.24

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	17	0	0	69
Lane Group Flow (vph)	184	184	612	168	279	49	342	763	59	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.22		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.04	0.58	0.80	0.17	0.97	0.58	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.0	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	47.0	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	90.9	54.7	64.5	46.3	59.8	34.5	30.9	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	C	C	D	F	B
Approach Delay (s)		82.8			55.5			41.6			121.0	
Approach LOS		F			E			D			F	

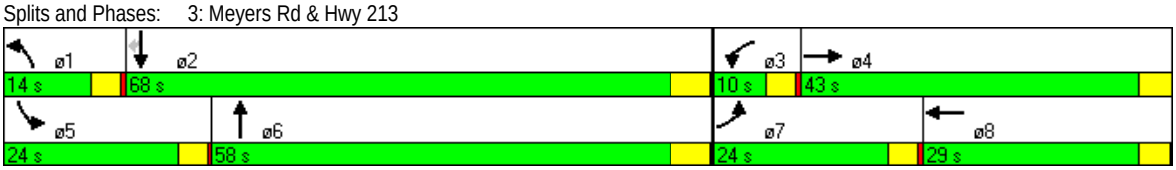
Intersection Summary			
HCM Average Control Delay	85.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00		1.00		0.97
Frt		0.903			0.963			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1664	0	1770	1785	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1762	1664	0	1765	1785	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			11			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	447	0	53	418	0	184	842	0	316	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38
Control Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	319		47	~446		~205	~855		~345	~974	8
Queue Length 95th (ft)	#459	#499		#118	#658		#360	#1108		m#262	m515	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	554		79	340		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
RTOR Reduction (vph)	0	48	0	0	9	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	399	0	53	409	0	184	840	0	316	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	341		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.23		c0.10	0.46		c0.18	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.79		0.84	1.20		1.29	1.15		1.21	1.12	0.31
Uniform Delay, d1	57.0	43.1		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.35	0.62	0.19
Incremental Delay, d2	68.3	8.2		60.8	114.7		171.5	81.4		96.2	53.0	0.1
Delay (s)	125.3	51.3		125.6	169.3		233.5	121.8		173.7	74.8	4.3
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.3			164.4			141.8			78.5	
Approach LOS		F			F			F			E	

Intersection Summary				
HCM Average Control Delay	101.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	109.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.991			0.994	
Flt Protected		0.984			0.986		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1873	1615	1787	1831	0	1805	1836	0
Flt Permitted		0.590			0.797		0.950			0.950		
Satd. Flow (perm)	0	1095	0	0	1514	1576	1787	1831	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	182	101	26	859	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.84			0.73	0.29	0.21	0.82		0.76	1.42	
Control Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		119			143	0	21	538		202	~2154	
Queue Length 95th (ft)		#220			230	49	53	#961		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		250			339	431	163	1060		448	1339	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.62			0.54	0.23	0.16	0.81		0.58	1.42	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 121.8	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1825			1873	1577	1787	1831		1805	1836	
Flt Permitted		0.59			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1095			1515	1577	1787	1831		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	85	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	182	16	26	857	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		19.0			19.0	19.0	4.7	70.4		22.1	87.8	
Effective Green, g (s)		20.0			20.0	20.0	5.7	71.4		23.1	88.8	
Actuated g/C Ratio		0.16			0.16	0.16	0.05	0.58		0.19	0.72	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177			245	255	82	1059		338	1320	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.12	0.01						
v/c Ratio		0.85			0.74	0.06	0.32	0.81		0.77	1.44	
Uniform Delay, d1		50.3			49.3	43.8	57.0	20.7		47.7	17.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		29.5			11.5	0.1	2.2	4.7		10.1	202.2	
Delay (s)		79.8			60.8	43.9	59.2	25.3		57.8	219.5	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		79.8			54.8			26.3			200.0	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM Average Control Delay	138.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	123.5	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

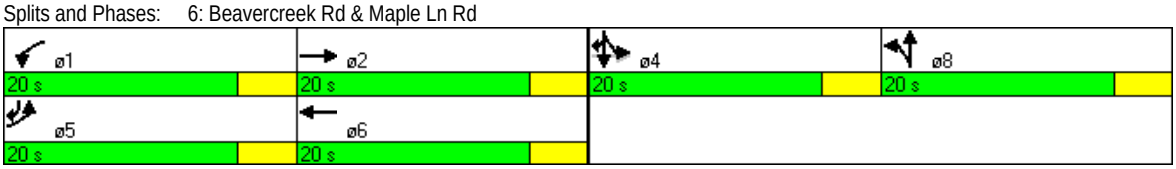
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.989	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1862	0
Flt Permitted	0.757						0.111					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	211	1881	0	1900	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108									12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1330	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.82	
Control Delay	41.7	0.5					3.1	3.4			11.6	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.1	3.4			11.6	
Queue Length 50th (ft)	29	0					1	90			340	
Queue Length 95th (ft)	59	0					5	178			#925	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	399					185	1645			1630	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.82	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 83.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1862	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1559	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.1	
Delay (s)	43.6	36.8					1.9	2.9			10.0	
Level of Service	D	D					A	A			B	
Approach Delay (s)		42.0			0.0			2.9			10.0	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.980	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1862	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1862	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			19	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1250	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.84	
Control Delay	44.2	13.8	51.0	3.8	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	17.3	
Queue Length 50th (ft)	54	0	14	85	317	
Queue Length 95th (ft)	95	23	39	163	#983	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1482	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1862	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	184
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	97	3	25	656	1245	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1411	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.67	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.88	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	8.3	
Delay (s)	44.4	38.1	110.5	3.2	16.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	16.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	58	242	6	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m96	#604	m49	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.36	0.82	1.29	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.0	25.8	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	90.3	64.9	44.9	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	D	F	F	C
Approach Delay (s)		132.6			102.5			63.6			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	91.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

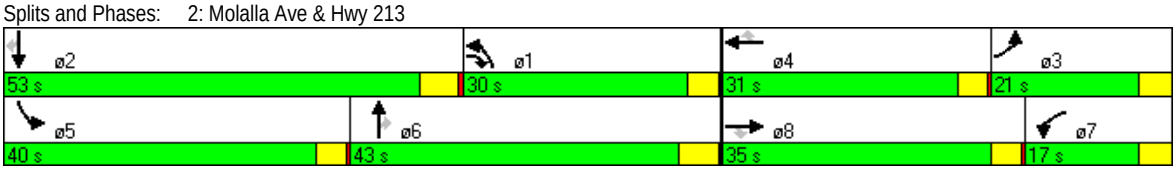
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			26			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.12	0.58	0.80	0.52	0.97	0.61	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~634	133	230	0	283	236	22	228	~1024	13
Queue Length 95th (ft)	#273	225	#804	#223	334	75	m239	m234	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.12	0.58	0.72	0.50	0.97	0.61	0.13	0.66	1.26	0.24

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	16	0	0	69
Lane Group Flow (vph)	184	184	625	168	279	49	342	797	60	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.23		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.06	0.58	0.80	0.17	0.97	0.61	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.4	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	53.7	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	97.6	54.7	64.5	46.3	60.1	35.0	31.0	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	D	C	D	F	B
Approach Delay (s)		87.1			55.5			41.8			121.0	
Approach LOS		F			E			D			F	

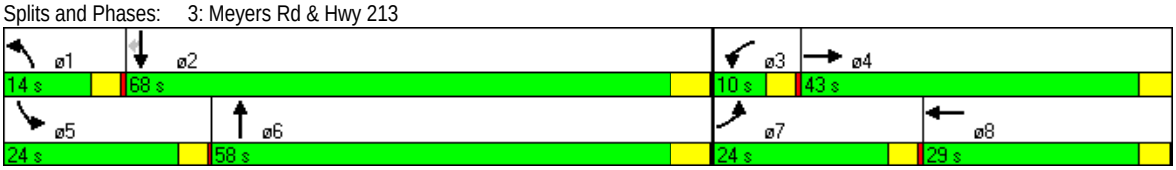
Intersection Summary				
HCM Average Control Delay	86.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	102.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00		0.97
Frt		0.904			0.956			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1771	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1763	1666	0	1765	1771	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66			14			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	464	0	184	842	0	329	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38
Control Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	~528		~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#746		#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	552		79	339		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	11	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	453	0	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	506		63	338		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.26		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.80		0.84	1.34		1.29	1.15		1.26	1.12	0.31
Uniform Delay, d1	57.0	43.3		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	8.9		60.8	171.4		171.5	81.4		118.0	53.0	0.1
Delay (s)	125.3	52.2		125.6	226.0		233.5	121.8		195.2	75.0	4.6
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.7			215.7			141.8			82.1	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM Average Control Delay	109.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.17			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	112.8%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.990			0.994	
Flt Protected		0.984			0.984		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1870	1615	1787	1830	0	1805	1836	0
Flt Permitted		0.581			0.765		0.950			0.950		
Satd. Flow (perm)	0	1079	0	0	1454	1576	1787	1830	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	194	101	26	864	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.81			0.77	0.28	0.21	0.83		0.76	1.43	
Control Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		120			155	0	21	566		206	~2201	
Queue Length 95th (ft)		#223			247	49	53	#973		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		244			322	427	161	1047		444	1325	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.64			0.60	0.24	0.16	0.83		0.59	1.43	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 123.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1869	1577	1787	1830		1805	1836	
Flt Permitted		0.58			0.76	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1078			1453	1577	1787	1830		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	84	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	194	17	26	862	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		20.2			20.2	20.2	4.8	70.3		22.3	87.8	
Effective Green, g (s)		21.2			21.2	21.2	5.8	71.3		23.3	88.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.05	0.57		0.19	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		183			247	268	83	1046		337	1306	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.13	0.01						
v/c Ratio		0.82			0.79	0.06	0.31	0.82		0.77	1.45	
Uniform Delay, d1		50.0			49.6	43.5	57.6	21.7		48.2	18.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		24.6			15.0	0.1	2.2	5.4		10.4	209.0	
Delay (s)		74.5			64.7	43.6	59.7	27.1		58.7	227.0	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		74.5			57.4			28.0			206.8	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM Average Control Delay	142.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	124.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

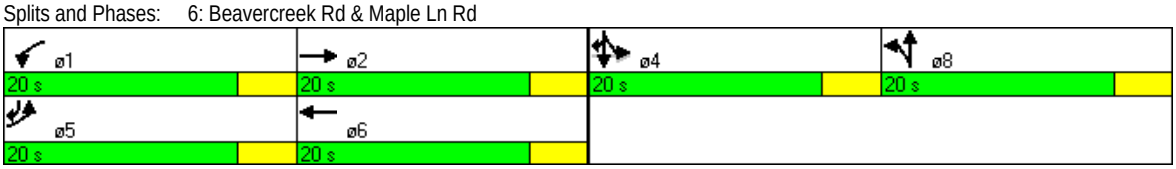
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1715	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1715	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			39				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	208	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	141		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	32	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	176	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.54		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.8		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.914			0.997			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1773	0	1805	1737	0	1805	1876	0	1805	1862	0
Flt Permitted	0.627			0.734			0.083			0.336		
Satd. Flow (perm)	1191	1773	0	1395	1737	0	158	1876	0	638	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			3			12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	36	0	29	111	0	11	752	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.40	0.17		0.19	0.44		0.08	0.49		0.06	0.86	
Control Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Length 50th (ft)	23	8		12	20		1	90		2	326	
Queue Length 95th (ft)	56	34		35	64		6	190		10	#893	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	246	379		288	410		130	1539		523	1529	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.09		0.10	0.27		0.08	0.49		0.06	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 77.5	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1773		1805	1736		1805	1876		1805	1862	
Flt Permitted	0.63	1.00		0.73	1.00		0.08	1.00		0.34	1.00	
Satd. Flow (perm)	1192	1773		1394	1736		158	1876		639	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
RTOR Reduction (vph)	0	14	0	0	58	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	22	0	29	53	0	11	751	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Effective Green, g (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	172		135	169		127	1502		512	1491	
v/s Ratio Prot		0.01			0.03			0.40			c0.71	
v/s Ratio Perm	c0.04			0.02			0.07			0.05		
v/c Ratio	0.46	0.13		0.21	0.31		0.09	0.50		0.06	0.89	
Uniform Delay, d1	33.4	32.3		32.6	32.9		1.7	2.6		1.6	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3		0.8	1.1		1.3	1.2		0.2	8.0	
Delay (s)	36.2	32.6		33.4	34.0		3.0	3.8		1.9	13.4	
Level of Service	D	C		C	C		A	A		A	B	
Approach Delay (s)		34.8			33.9			3.8			13.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.979	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1860	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			21	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	29	25	659	1074	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	29	25	659	1272	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.49	0.14	0.31	0.42	0.86	
Control Delay	44.4	13.7	51.2	4.0	18.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.4	13.7	51.2	4.0	18.6	
Queue Length 50th (ft)	57	0	14	88	342	
Queue Length 95th (ft)	100	23	40	168	#1017	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1574	1477	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.09	0.31	0.42	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1860	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	29	25	659	1074	198
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	103	3	25	659	1267	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	1.7	75.9	70.2	
Effective Green, g (s)	9.1	9.1	1.7	75.9	70.2	
Actuated g/C Ratio	0.10	0.10	0.02	0.82	0.75	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	158	33	1551	1404	
v/s Ratio Prot	c0.06		0.01	c0.35	c0.68	
v/s Ratio Perm		0.00				
v/c Ratio	0.58	0.02	0.76	0.42	0.90	
Uniform Delay, d1	40.1	37.9	45.4	2.4	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.0	65.1	0.9	9.7	
Delay (s)	44.9	38.0	110.6	3.3	18.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.4			7.2	18.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

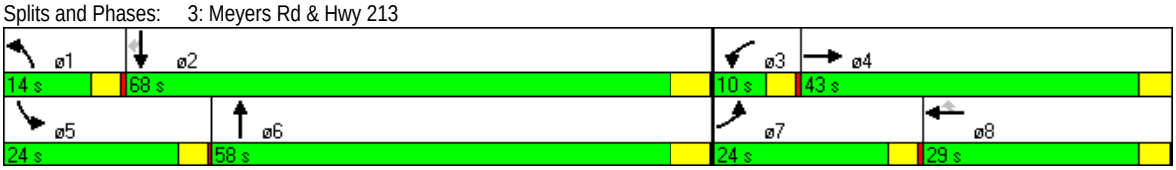
Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		50	150		0	225		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00	1.00		1.00		0.97
Frt		0.904				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1863	1583	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1666	0	1765	1863	1553	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				41		3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	328	136	184	842	0	329	1842	313
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Detector Phase	7	4		3	8	8	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0	20.0	14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	29.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	21.5%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0	25.0	10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5	3.5	3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0					5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0	11.0					20.0	20.0
Pedestrian Calls (#/hr)	0	0			0	0					0	0
v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38
Control Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	288	73	~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#476	141	#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150		50	150			225		225
Base Capacity (vph)	275	551		79	345	321	144	746		263	1671	815
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0	4.0	3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	0	33	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	328	103	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Actuated Green, G (s)	20.0	40.9		4.8	25.7	25.7	10.1	52.2		20.1	62.2	62.2
Effective Green, g (s)	21.0	40.9		4.8	25.7	25.7	11.1	54.2		20.1	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19	0.19	0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	355	296	144	733		264	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.18		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm						0.07						0.15
v/c Ratio	1.05	0.80		0.84	0.92	0.35	1.28	1.15		1.25	1.12	0.31
Uniform Delay, d1	57.0	43.4		64.7	53.7	47.4	62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	9.0		60.8	29.1	0.7	167.8	81.4		113.8	53.0	0.1
Delay (s)	125.3	52.4		125.6	82.7	48.1	229.8	121.8		190.9	75.0	4.6
Level of Service	F	D		F	F	D	F	F		F	E	A
Approach Delay (s)		80.8			78.0			141.1			81.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	93.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Beavercreek Road Concept Plan

Envisioning a Complete and Sustainable Community

Concept Plan Report, Summary and Recommendations
Final Plan August 2008

Attachment A
Exhibit 2

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by Federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Beavercreek Road Concept Plan

Summary and Recommendations

Final Plan - August 2008

Funding provided by:

City of Oregon City

Oregon Department of Transportation -
Transportation and Growth Management Program

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C. Existing Conditions, Opportunities and Constraints Reports
   1. Land use
   2. Transportation
   3. Sustainability
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   5. Natural resources
   6. Infrastructure
D. Focus Group Summaries
E. Summaries of Community Events
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J. Draft Code

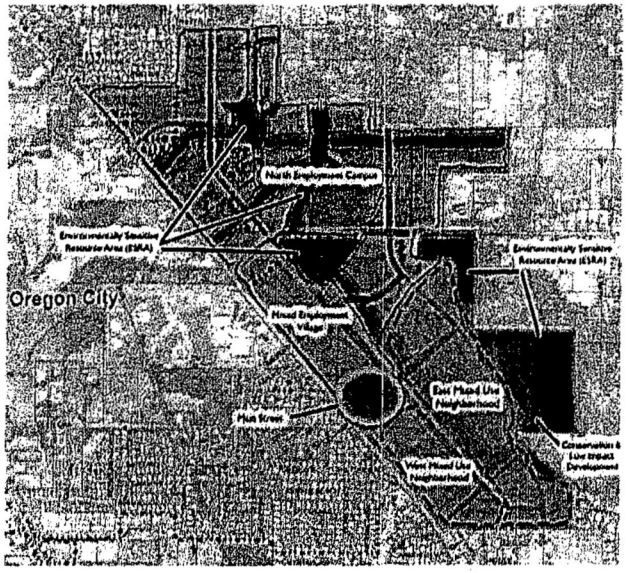
I. Introduction

Summary

The Beavercreek Road Concept Plan is a guide to the creation of a complete and sustainable community in southeast Oregon City. Most of the 453 acre site along Beavercreek Road was added to the regional urban growth boundary by Metro in 2002 and 2004. The plan envisions a diverse mix of uses (an employment campus north of Loder Road, mixed use districts along Beavercreek Road, and two mixed use neighborhoods) all woven together by open space, trails, a network of green streets, and sustainable development practices. Transit-oriented land uses have been strategically located to increase the feasibility of transit service in the future. The plan has been carefully crafted to create a multi-use community that has synergistic relationships with Clackamas Community College, Oregon City High School, and adjacent neighborhoods.

Key features of the Concept Plan are:

- *A complete mix of land uses, including:*
  - A North Employment Campus for tech flex and campus industrial uses, consistent with Metro requirements for industrial and employment areas.
  - A Mixed Employment Village along Beavercreek Road, between Meyers Road and Glen Oak Road, located as a center for transit-oriented densities, mixed use, 3-5 story building scale, and active street life.
  - A 10-acre Main Street area at Beavercreek Road and Glen Oak Road, located to provide local shops and services adjacent neighborhoods and Beavercreek sub-districts.
  - A West Mixed Use Neighborhood along Beavercreek Road, intended for medium to high density (R-2) housing and mixed use.
  - An East Mixed Use Neighborhood, intended for low density residential (R-5) and appropriate mixed use. The East Neighborhood has strong green edges and the potential for a fine grain of open space and walking routes throughout.



Proposed Land Use Sub-districts

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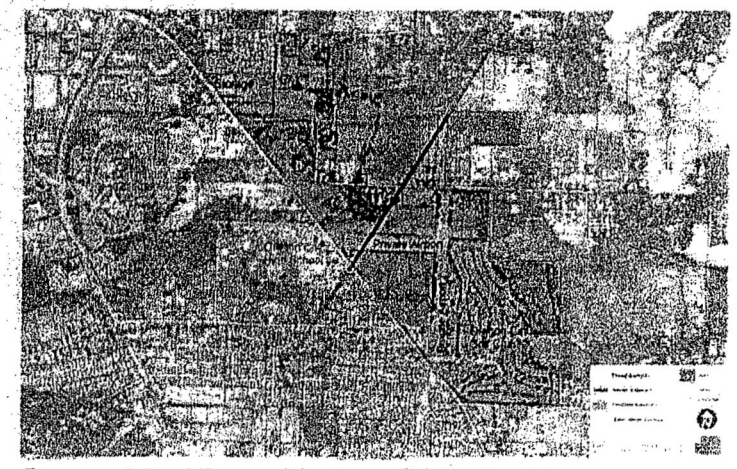
- *Policy support for employment and program connections with Clackamas Community College.*
- *Sustainability strategies, including:*
  - Mixed and transit supportive land uses.
  - A sustainable stormwater management plan that supports low impact development, open conveyance systems, regional detention, and adequate sizing to avoid downstream flooding.
  - Green street design for all streets, including the three lane boulevard design for Beavercreek Road.
  - A preliminary recommendation supporting LEED certification or equivalent for all commercial and multi-family buildings, with Earth Advantage or equivalent certification for single family buildings. This recommendation includes establishment of a Green Building Work Group to work collaboratively with the private sector to establish standards.
  - Open spaces and natural areas throughout the plan. North of Loder Road, these include the power line corridors, the tributary to Thimble Creek, and a mature tree grove. South of Loder Road, these include an 18-acre Central Park, the east ridge area, and two scenic view points along the east ridge.
- *A trail framework that traverses all sub-districts and connects to city and regional trails.*
- *A street framework that provides for a logical and connected street pattern, parallel routes to Beavercreek Road, and connections at Clairmont, Meyers, Glen Oak, and the southern entrance to the site.*
- *A draft Beavercreek Road Zone development code to implement the plan.*

Purpose of this Report and Location of Additional Information

This report is a summary of the Plan, with emphasis on describing key elements and recommendations. Many of the recommendation are based on technical reports and other information that is available in the Technical Appendix to this report.



Beavercreek Road Concept Plan Area - Existing Conditions

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Figure 1 - Composite Concept Plan

II. Purpose and Process

The purpose of the Beavercreek Road Concept Plan is to provide a conceptual master plan to be adopted as an ancillary document to the City of Oregon City's Comprehensive Plan. As such, it provides a comprehensive and cohesive guide to future development, in three parts:

- Framework plan maps, goals and policies – These elements will be adopted as part of the Oregon City Comprehensive Plan. Compliance will be required for all land use permits and development.
- Ancillary report materials – The descriptive text, graphics and technical appendix of this report will be adopted as an "ancillary document" to the Comprehensive Plan, which provides "operational guidance to city departments in planning and carrying out city services" (Oregon City Comprehensive Plan, page 4). These documents include information for updating the City's utility master plans and Transportation System Plan.
- Draft development code – A working draft development code was prepared as part of the Concept Plan. Once final, it will be adopted as part of the Oregon City Code. Compliance will be required for all land use permits and development. The Beavercreek Zone code relies on master planning to implement the concepts in the Plan.

The Concept Plan was developed by a 15-member Citizen Advisory Committee (CAC) and 9-member Technical Advisory Committee (TAC) (see Project Participants list at the beginning of this report). The committees met twelve times between June 2006 and July 2007.

Design Workshop Participants

In addition to the Committee meetings, additional process steps and community involvement included:

- Study area tour for CAC and TAC members
- Two public open houses
- Market focus group
- Sustainability focus group
- Employment lands coordination with Metro
- Community design workshop
- Website
- Project posters, site sign, email notice, and extensive mailing prior to each public event

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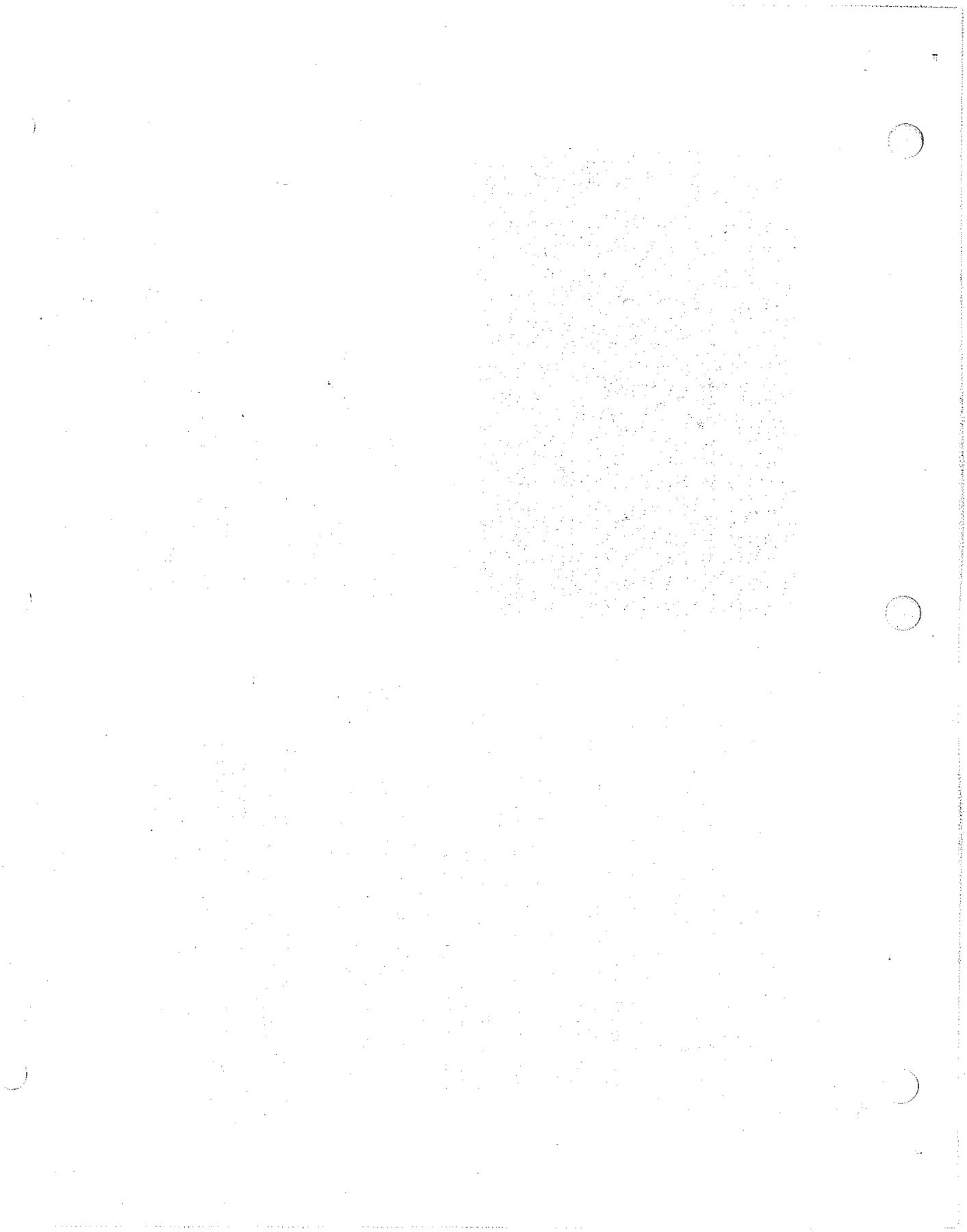
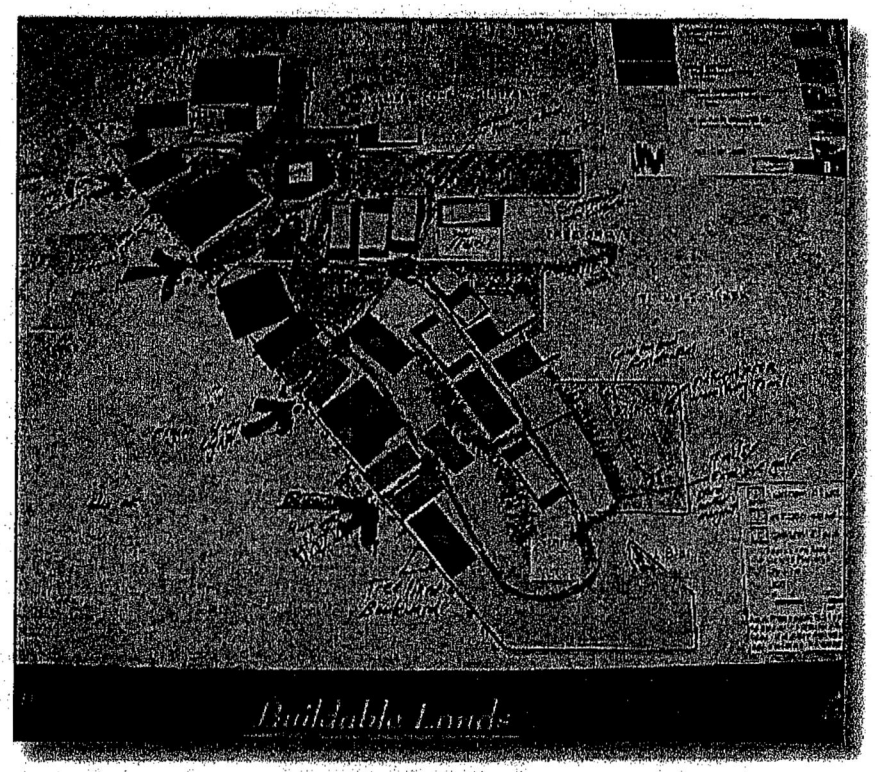


The major steps in the process were:

- Inventory of base conditions, opportunities, constraints for land use, transportation, natural resources, market conditions, infrastructure and sustainability.
- Establishment of project goals.
- Extensive discussion of employment lands questions: how much, what type and where?
- Following the community workshop, preparation of three alternative concept plans (sketch level), addition of a fourth plan, prepared by a CAC member, and narrowing of the alternatives to two for further analysis.
- Evaluation of the alternatives (including transportation modeling) and preparation of a hybrid Concept Plan (framework level).
- Preparation of detailed plans for water, sewer, storm water, and transportation facilities.
- Preparation of a draft development code.
- Committee action to forward the Concept Plan package to the Planning Commission and City Commission.

For additional information please see Technical Appendix, Sections A, D, E, and F.



Design Workshop Plan

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III. Vision, Goals and Principles

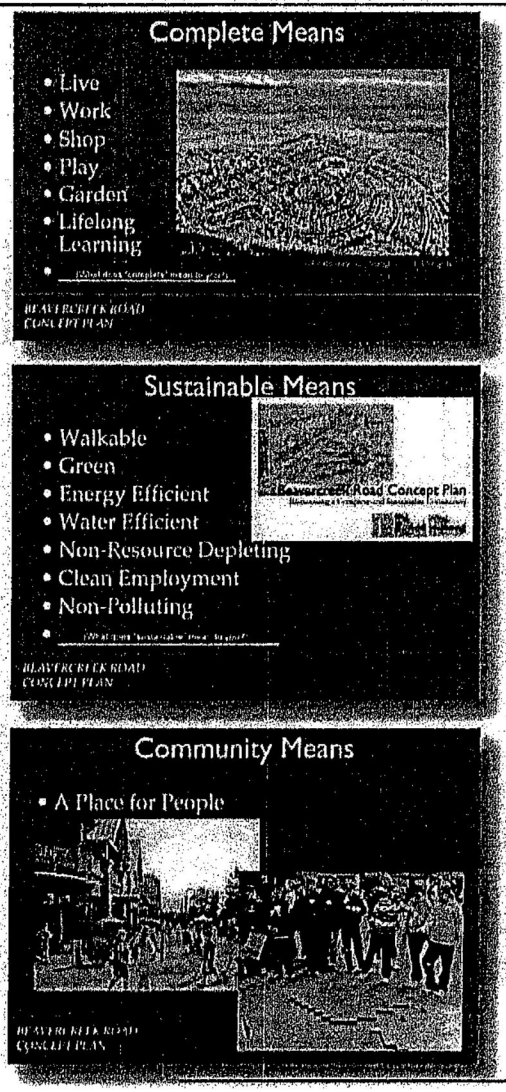
The overall vision for the Beavercreek Concept Plan is to create "A Complete and Sustainable Community". The images shown on this page were displayed throughout the process to convey the project's intent for this vision statement.

Regarding the meaning of sustainability, the vision statement is based in part on the definition of sustainability originally developed by the United Nations Brandtland Commission: "A sustainable society meets the needs of the present without sacrificing the ability of future generations to meet their own needs".

The following project goals were developed by the Citizen Advisory Committee. The Committee also added objectives to each of the goals – please see Appendix 1 for the objectives.

The Beavercreek Road Concept Plan Area will:

- Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center;
- Be a model of sustainable design, development practices, planning, and innovative thinking;
- Attract "green" jobs that pay a living wage;
- Maximize opportunities for sustainable industries that serve markets beyond the Portland region and are compatible with the site's unique characteristics;
- Incorporate the area's natural beauty into an ecologically compatible built environment;
- Provide multi-modal transportation links (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas;



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- Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand;
- Promote connections and relationships with Oregon City High School and Clackamas Community College;
- Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability; and
- Ecological Health – Manage water resources on site to eliminate pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

The following 10 Principles of Sustainable Community Design were submitted by a CAC member, supported by the committee, and used throughout the development of the Concept Plan:

1. Mix Land Uses - Promote a mix of land uses that support living wage jobs and a variety of services.
2. Housing Types - Create a range of housing choices for all ages and incomes.
3. Walk-ability - Make the Neighborhood "walkable" and make services "walk-to-able."
4. Transportation - Provide a range of transportation options using a connected network of streets and paths.
5. Open Space - Protect and maintain a functioning green space network for a variety of uses.
6. Integrate Systems - Integrate ecological and man-made systems to maximize function, efficiency and health.
7. Watershed Health - Manage water resources on site to eliminate pollution to watershed and lesson impact on municipal infrastructures.
8. Reuse, Recycle, Regenerate - Reuse existing resources, regenerate existing development areas
9. Green Buildings - Build compact, innovative structures that use less energy and materials
10. Work Together - Work with community members and neighbors to design and develop.

Thimble Creek Tributary

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IV. Regional and Local Context

The Beavercreek Road Concept Plan area is 453 acres of land located at the southeast edge of Oregon City and the Urban Growth Boundary (UGB). It marks a transition point between the City's current edge of urbanization and rural and resource lands to the south and east.

The majority of the site (245 acres) was added to the Metro UGB in December 2002 and an additional 63 acres were added to the UGB in 2004. The remaining site acreage was in the UGB and/or the Oregon City limits prior to 2002. The Concept Plan area carries Metro design type designations of Employment, Industrial, and Outer Neighborhood on the Region 2040 Growth Concept Map. The properties with the Outer Neighborhood designation have been in the UGB since 1980. Employment design type areas, as defined by Metro, allow various types of employment with some residential development and limited commercial uses. Industrial design type areas are set aside by Metro primarily for industrial activities with limited supporting uses.

During the update of Oregon City's Comprehensive Plan, a policy was adopted acknowledging the jobs-related importance of the site to Oregon City and the region, while also allowing some flexibility in the project area's land use. Comprehensive Plan policy 2.6.8 states:

"Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which is approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the City's employment goals."

There are relatively limited employment centers within this area of Oregon City and Clackamas County. This imbalance of jobs and housing contributes to Clackamas County's pattern of approximately 60% of the work force traveling outside of the County to work.

The site is surrounded by residential and undeveloped properties within the city limits, including the Hamlet of Beavercreek, and rural Clackamas County. The nearest commercial area is the Berry Hill Shopping Center at the intersection of Beavercreek Road and Highway 213. Clackamas County College (CCC) and Oregon City High School are across Beavercreek Road adjacent to the site. These institutional uses offer a unique opportunity to plan synergistic land uses that connect the properties, reinforce an identity for the area, and help localize trips. A Tri-Met transit hub is located on the CCC property.

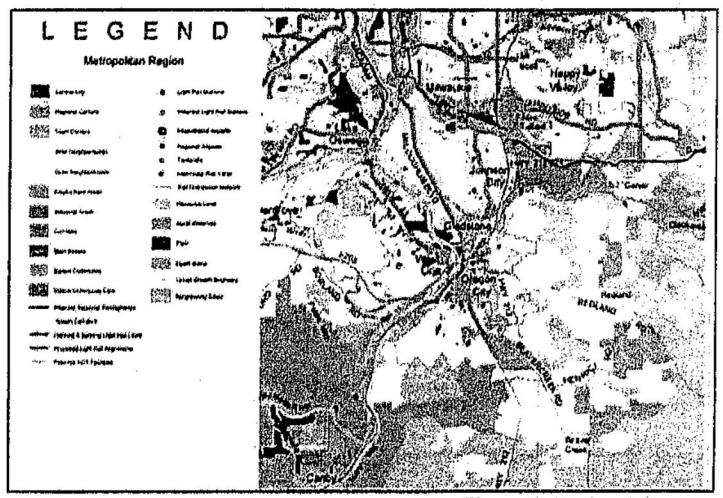

Figure 2 - Regional Context

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Like all additions to the Portland Metropolitan Area Urban Growth Boundary, the Beavercreek Road area is inextricably tied to it's place in the region and its place within Oregon City. The Concept Plan responds to this context in multiple ways.

From a regional perspective, the Beavercreek Road area is currently a transition point from urban to rural use. Whether this "hard line" of transition will remain in the future cannot be established with certainty. The CAC openly acknowledged this issue in its discussions and sought to balance the needs of creating a great urban addition to Oregon City with sensitivity to adjacent areas. Examples of this balance include:

- The plan has land use and transportation connections that support future transit. This will link the Beavercreek Road area, via alternative transportations, to Clackamas Community College (CCC), the Oregon City Regional Center (downtown and adjacent areas) and the rest of the region.
- Trails and green spaces have been crafted to link into the broader regional network.
- The plan recommends lower densities and buffer treatments along Old Acres Road.
- The north south collector roads are coalesced to one route that could (if needed) be extended south of Old Acres Road.
- The recommended street framework provides for a street that parallels Beavercreek Road, connecting Thayer Road to Old Acres Road, and potentially north and south in the future. This keeps options open: if the UGB extends south, the beginning of a street network is in place. If it does not, the connection is available for rural to urban connectivity if desired.
- As with the street network described above, the East Ridge trail is extended all the way to Old Acres Road, and therefore, potentially beyond.

This will provide a connection from rural areas to the open spaces and trail network of Beavercreek Road area and the rest of the region.

From a City and local neighborhood perspective, the Beavercreek Road area offers an opportunity to establish a new complete and sustainable community within Oregon City. Specific linkages include the following:

- Oregon City needs employment land. The Beavercreek Concept Plan provides 156 net acres of it in two forms: 127 net acres of tech flex campus industrial land, 29 acres of more vertical mixed use village and main street. Additional employment will be available on the Main Street and as mixed use in the two southern neighborhoods.
- The street framework connects to all of the logical adjacent streets. This includes Thayer, Clairmont, Meyers, Glen Oak, and Old Acres Roads. This connectivity will disperse traffic to many routes, but equally important, make Beavercreek Road connected to, rather than isolated from, adjacent neighborhoods, districts and corridors.
- The plan provides for a complete community: jobs, varied housing, open space, trails, mixed use, focal points of activity, trails, and access to nature.
- The plan provides for a sustainable community, in line with the City's

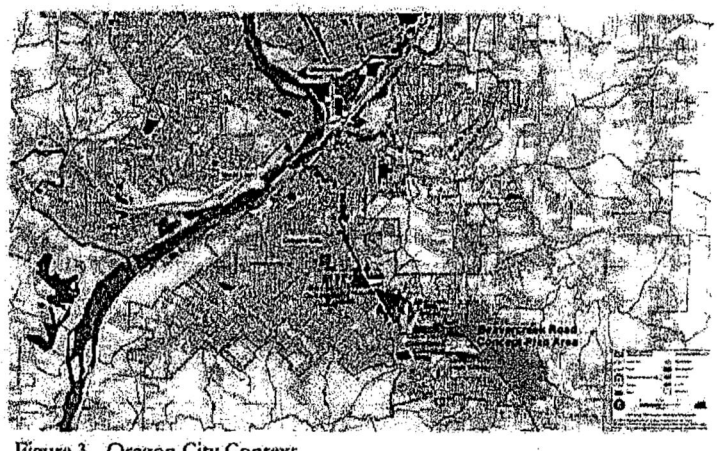

Figure 3 - Oregon City Context

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Comprehensive Plan support for sustainability. This takes the form of mixed land uses, transportation options, green streets, sustainable storm water systems, and LEED or equivalent certification for buildings. Much more can certainly be done – the Concept Plan offers an initial platform to work from.

- Physical linkages have been provided to Oregon City High School and Clackamas Community College. These take the form of the planned 3-lane green street design for Beavercreek Road and the intersections and trails at Clairmont, Loder and Meyers Roads. The physical linkages are only the beginning – the City, School District and College need to work together to promote land uses on the east side of Beavercreek Road that truly create an institutional connection.

For additional information, see Existing Conditions, Opportunities and Constraints Reports, Technical Appendix C.

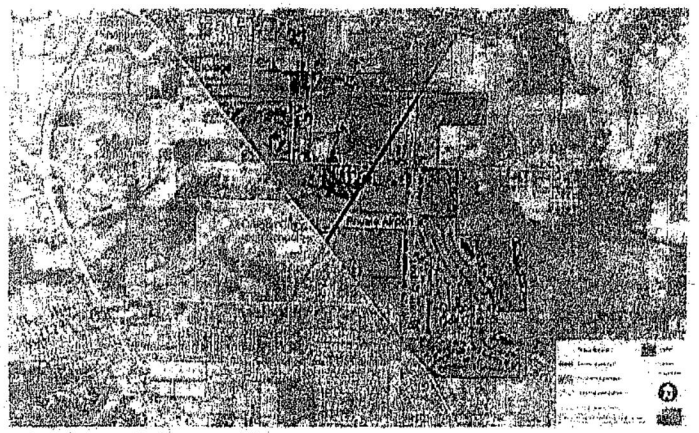

Figure 4 - Existing Conditions

Site Conditions and Buildable Lands

A portion of the study area (approximately 50 acres) is currently within the existing city limits and zoned Campus Industrial (CI). The study area's northern boundary is Thayer Road and the southern boundary is Old Acres Lane. Loder Road is the only existing road that runs through the project area.

Currently, the project area is largely undeveloped, which has allowed the site to retain its natural beauty. There are 448 gross acres in the project area, not including the right-of-way for Loder Road (approximately five acres). The existing land uses are primarily large-lot residential with agricultural and undeveloped rural lands occupying approximately 226 acres of the project area. The Oregon City Golf Club (OCGC) and private airport occupy the remaining 222 acres.

There are several large power line and natural gas utility easements within the project boundaries. These major utility easements crisscross the northern and central areas of the site. The utility easements comprise approximately 97 acres or 20% of the project area.

There are 51 total properties ranging in size from 0.25 acres to 63.2 acres. Many of these properties are under single ownership, resulting in only 42 unique property owner names (Source: Clackamas County Assessor). There are several existing homes and many of the properties have outbuildings such as, sheds, greenhouses, barns, etc., which result in 127 existing structures on the site (Source: Clackamas County Assessor).

A key step in the concept planning process is the development of a Buildable Lands Map. The Buildable Lands Map was the base map from which the concept plan alternatives and the final recommended plan were. "Buildable" lands, for the purpose of the Beavercreek Road Concept Plan, are defined as the gross site area minus wetlands, steep slopes, other Goal 5 resources, public utility easements, road rights-of-way, and committed properties (developed properties with an assessed improvement value

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greater than $350,000). Properties with an assessed improvement value of less than$350,000 (based on County assessment data) are considered redevelopable over the long-term as the existing structures are converted to higher value uses. The OCGC has an improvement value over $350,000, but has been included as buildable lands (minus the clubhouse) because the owners may wish to redevelop the property in coordination with the recommended concept plan over time. The private airport has also been included as buildable over the long-term, recognizing that the owners may choose to continue the airport's use for many years.

When land for power lines, the natural gas line, natural resources, and committed structures are removed the net draft buildable acreage is approximately 292 acres. The CAC reviewed the Preliminary Buildable Lands map and approved a three-tier system to define the buildable lands. Tier A or "Unconstrained" has approximately 292 acres, Tier B or "Low Impact Development Allowed with Review" has approximately 28 acres, and Tier C "Constrained" has approximately 131 acres. The "Low Impact" area was later further evaluated and recommended for conservation under a Environmentally Sensitive and Resource Area designation on the plan.

The Buildable Lands Map was reviewed at the July 20th and August 17th Citizen and Technical Advisory Committee (CAC/TAC) meetings, as well as at the August 24th, 2006 Open House. The draft buildable land boundaries and acreages shown in Figure 6 reflect the input received from the advisory committee members, property owners, and citizen input.

For additional information, see Existing Conditions, Opportunities and Constraints Reports, Technical Appendix C.

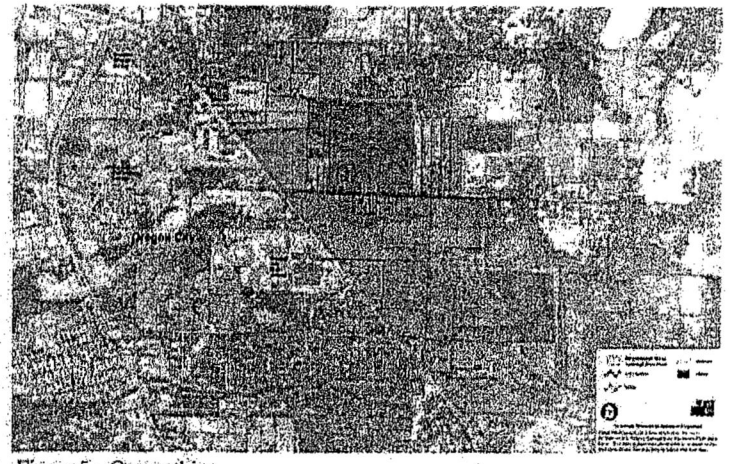

Figure 5 - Ownerships

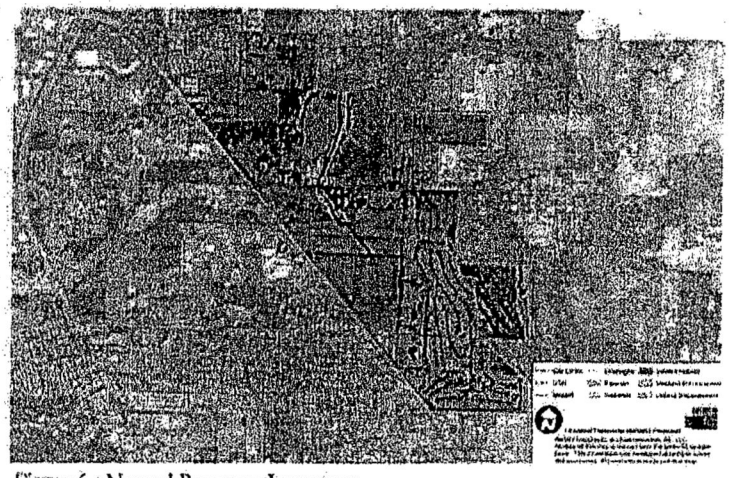

Figure 6 - Natural Resource Inventory

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Figure 7 - Buildable Lands

Employment – A Key Issue

How much employment? What type? And where? These questions were extensively discussed during the development of the Concept Plan. Three perspectives emerged as part of the discussion:

Oregon City Perspective

Prior to initiating the Concept Plan process, the City adopted a comprehensive plan policy which emphasizes family wage employment on the site. The policy reads: "Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which is approved as an amendment to the Comprehensive Plan, [and will] guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the City's employment goals." Oregon City Comprehensive Plan, Policy 2.6.8.

Metro Perspective

Metro brought the majority of the concept plan area (245 gross acres) into the UGB in 2002 and 2004 to fulfill regional industrial employment needs. These areas (308 gross acres) are designated as the Industrial Design Type on Metro's 2040 Growth Concept Map. As part of its land need metrics reported to the region and state, Metro estimated 120 net acres of the Beavercreek Road Concept Plan's land would be used for employment uses. Metro representatives met with the Concept Plan CAC and emphasized: (1) it was important to Metro for the Concept Plan to fulfill their original intent for providing Industrial land; and, (2) that there was flexibility, from Metro's perspective, for the local process to evaluate creative ways to meet that intent.

Citizen Advisory Committee Perspective

The CAC discussed extensively the issues and options for employment lands. Many sources of information were consulted: a market analysis by ECONorthwest (See Appendix __), a developer focus group, land inventory and expert testimony submitted by property owners, the Metro perspective cited above, and concerns of neighbors. The advice ranged from qualified optimism about long term employment growth to strong opposition based on shorter term market factors and location considerations. Some members of the CAC advocated for a jobs target (as opposed to an acreage target) to be the basis for employment planning.

At it's meeting on September 14th, 2006, the CAC developed a set of "bookends" for the project team to use while creating the plan alternatives.

a. At least one plan alternative will be consistent with the Metro Regional Growth Concept.

b. At least one plan alternative (may be the same as above) would be designed consistent with Policy 2.6.8.

c. Other alternatives would have the freedom to vary from "a" and "b" above, but would also include employment.

d. No alternative would have heavy industrial, regional warehousing or similar employment uses".

After evaluating alternatives, the CAC ultimately chose a hybrid employment strategy. The recommended Concept Plan includes: (1) about 127 net acres of land as North Employment Campus, which is consistent with Metro's intent and similar to Oregon City's Campus Industrial designation; (2) about 29 acres as Mixed Employment Village and Main Street, which allows a variety of uses in a village-oriented transit hub; and, (3) mixed use neighborhoods to the south that also provide for jobs tailored to their neighborhood setting.

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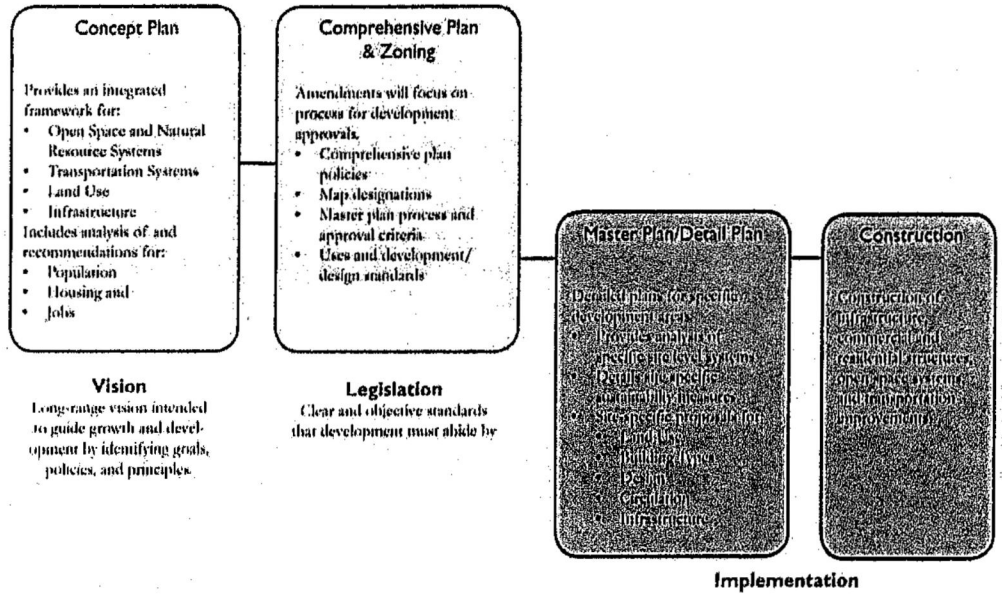
V. Concept Plan Summary

The Framework Plan Approach

The Beavercreek Road Concept Plan is a framework for a new, urban community. The plan is comprised of generalized maps and policies that integrate land use, transportation, open space, and green infrastructure. The framework maps and policies are supported by detailed code and requirements for master planning and design review. The approach here is to set the broad framework and intent on the figures and text in this Plan. Detailed development plans demonstrating compliance with the Concept Plan are required in the implementing code.

The framework plan approach is intended to:

- Ensure the vision, goals and standards are requirements in all land use decisions
- Provide for flexibility in site specific design and implementation of the Plan and code
- Allow for phased development over a long period of time (20+ years)



The code describes many detailed requirements such as street connectivity, block configuration, pocket parks, building scale, pedestrian connections, low impact development features, tree preservation, and sustainable buildings. These design elements will be essential to the success of the area as a walkable, mixed use community. The expectation of this Plan is that the flexibility is coupled with a high standard for sustainable and pedestrian-oriented design.

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Land Use Sub-Districts

Figure 8 illustrates the five land-use "sub-districts" of the concept plan area. Each has a specific focus of land use and intended relationship to its setting and the plan's transportation and open space systems. Each is briefly described below and illustrated on Figures 9 through 12.

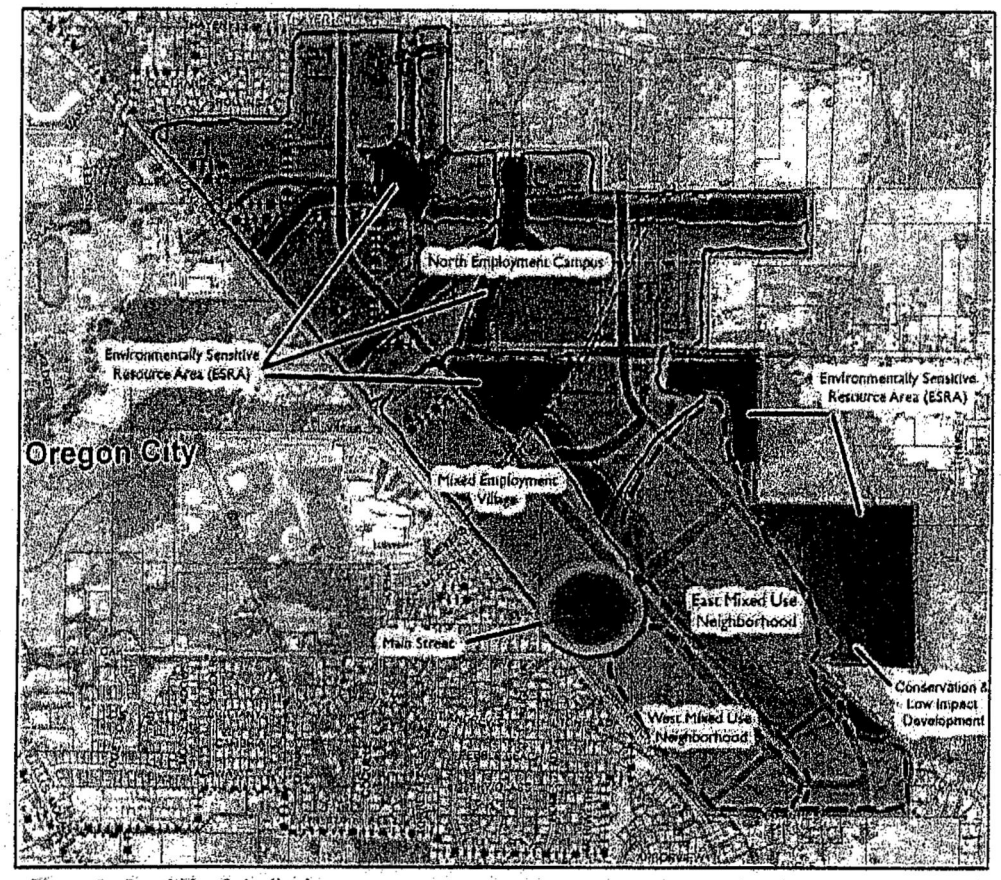

Figure 8 - Land Use Sub-districts

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North Employment Campus – NEC

The purpose of the North Employment Campus is to provide for the location of family wage employment that strengthens and diversifies the economy. The NEC allows a mix of clean industries, offices serving industrial needs, light industrial uses, research and development and large corporate headquarters. The uses permitted are intended to improve the region's economic climate, promote sustainable and traded sector businesses, and protect the supply of sites for employment by limiting incompatible uses. The sub-district is intended to comply with Metro's Title 4 regulations. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College (CCC) are encouraged to help establish a positive identity for the area and support synergistic activity between CCC and NEC properties. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

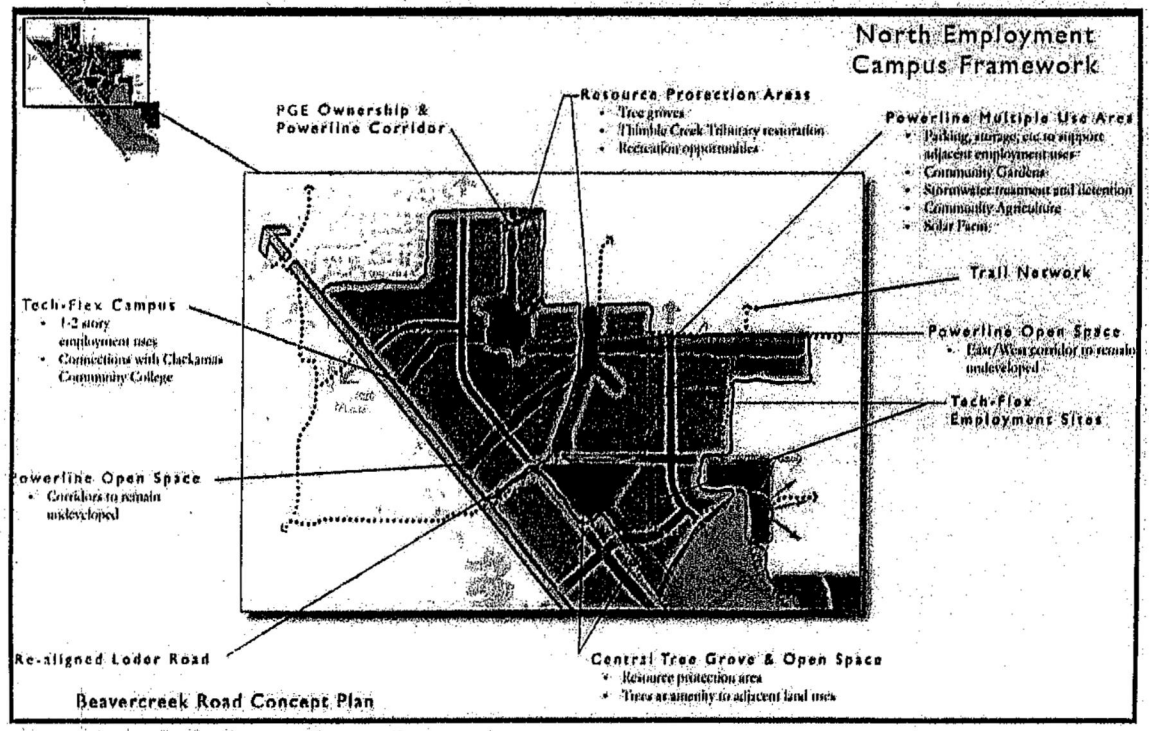

Figure 9 - North Employment Campus Framework

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Mixed Employment Village – MEV

The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

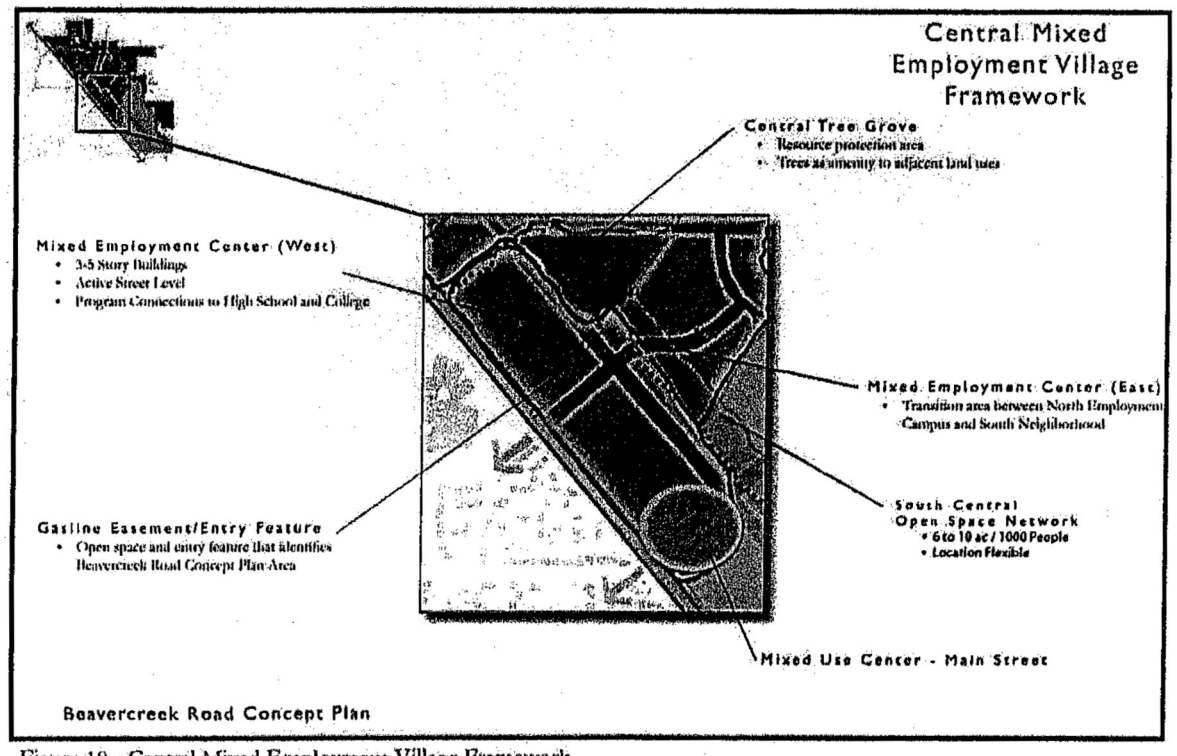

Figure 10 - Central Mixed Employment Village Framework

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Main Street – MS

The purpose of this small mixed-use center is to provide a focal point of pedestrian activity. The MS allows small scale commercial, mixed use and services that serve the daily needs of the surrounding area. "Main Street" design will include buildings oriented to the street, an minimum of 2 story building scale, attractive streetscape, active ground floor uses and other elements that reinforce pedestrian oriented character and vitality of the area.

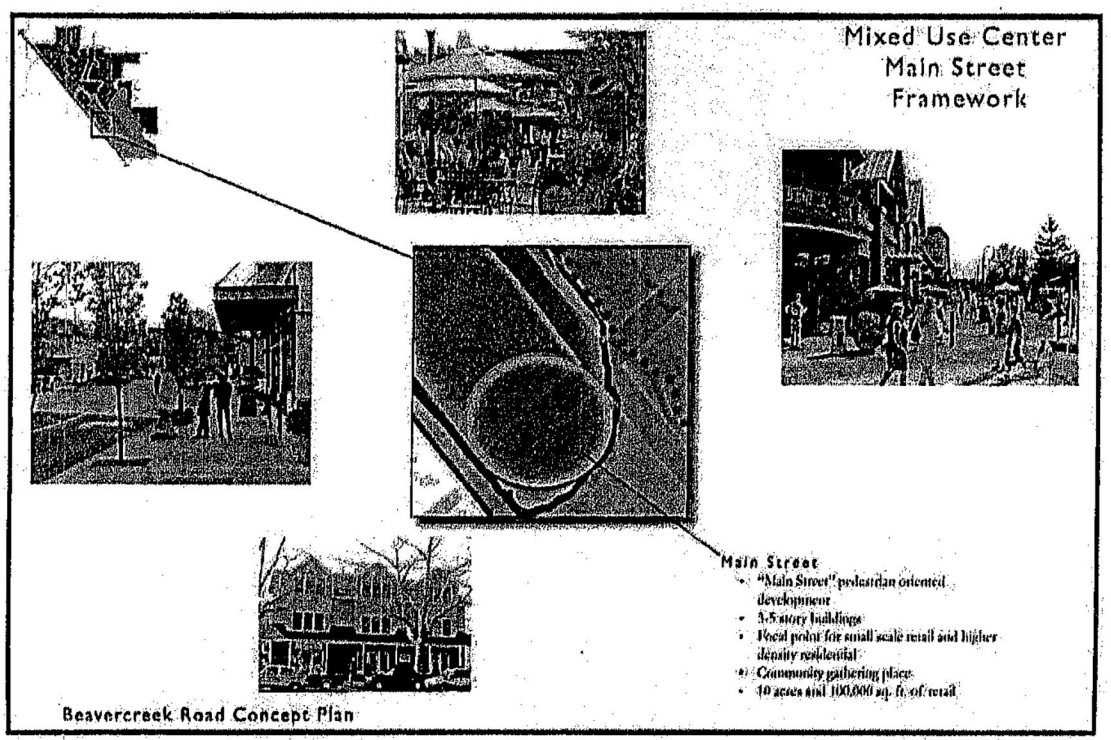

Figure 11 - Main Street Framework

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West Mixed Use Neighborhood – WMU

The West Mixed Use Neighborhood will be a walkable, transit-oriented neighborhood. This area allows a transit supportive mix of housing, live/work units, mixed use buildings and limited commercial uses. A variety of housing and building forms is required, with the overall average of residential uses not exceeding 22 dwelling units per acre. The WMU area's uses, density and design will support the multi-modal transportation system and provide good access for pedestrians, bicycles, transit and vehicles. Site and building design will create a walkable area and utilize cost effective green development practices.

East Mixed Use Neighborhood – EMU

The East Mixed Use Neighborhood will be a walkable and tree-lined neighborhood with a variety of housing types. The EMU allows for a variety of housing types while maintaining a low density residential average not exceeding densities permitted in the R-5 zone. Limited non-residential uses are permitted to encourage a unique identity, sustainable community, and in-home work options. The neighborhood's design will celebrate open space, trees, and relationships to public open spaces. The central open space, ridge open space scenic viewpoints, and a linked system of open spaces and trails are key features of the EMU. Residential developments will provide housing for a range of income levels, sustainable building design, and green development practices.

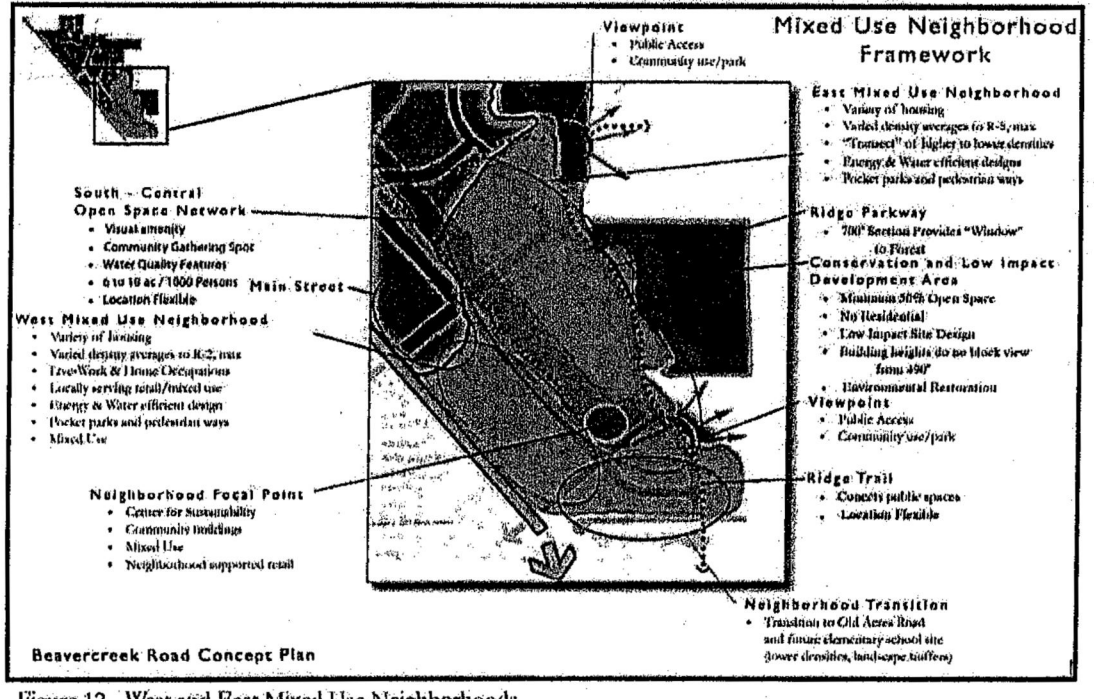

Figure 12 - West and East Mixed Use Neighborhoods

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Open Space

The Open Space Framework illustrated on Figure 13 provides a network of green spaces intended to provide:

- A connected system of parks, open spaces and natural areas that link together and link to the Environmentally Sensitive Resource Areas.
- Scenic and open space amenities and community gathering places
- Access to nature
- Tree and natural area preservation
- Locations where storm water and water quality facilities can be combined with open space amenities, and opportunities to implement sustainable development and infrastructure
- Green spaces near the system of trails and pedestrian connections
- Open spaces which complement buildings and the urban, built environment

Power Line Open Spaces

The power line corridors and gas line corridor comprise 97 acres of land. The power line corridors north of Loder Road are a dominant feature. They are a dominant feature because they define open corridors and have a significant visual impact related to the towers. They also have a influence on the pattern of land use and transportation connections. In response to these conditions, the Concept Plan includes four main strategies for the use of the power line corridors:

- Provide publicly accessible open spaces. The implementing code includes a minimum 100 foot-wide open space and public access easement would be required at the time of development reviews, or, obtained through cooperative agreements with the utilities and property owners.
- Provide trails. A new east-west trail is shown on Figure 13 that follows the main east-west corridor. This corridor has outstanding views of Mt. Hood.
- Allow a broad array of uses. Ideas generated by the CAC, and permitted by the code, include: community gardens, urban agriculture, environmental science uses by CCC, storage and other "non-building" uses by adjacent industries, storm water and water quality features, plant nurseries, and solar farms.
- Link to the broader open space network. The power line corridors are linked to the open spaces and trail network in the central and southern areas of the plan.

South-Central Open Space Network

Park spaces in the central and southern areas of the plan will be important to the livability and sustainability goals for the plan. The basic concept is to assure parks are provided, provide certainty for the total park acreage, guide park planning to integrate with other elements, and provide flexibility for the design and distribution of parks.

The following provisions will apply during master planning and other land use reviews:

- Park space will be provided consistent with the City's Park and Recreation Master Plan standard of 6 to 10 acres per 1000 population.
- The required acreage may be proposed to be distributed to a multiple park spaces, consistent with proposed land uses and master plan design.
- A central park will be provided. The location and linearity of the park was first indicated by Metro's Goal 5 mapping. It was illustrated by several citizen groups during the design workshop held in October, 2006. This open space feature is intended as a connected, continuous and central green space that links the districts and neighborhoods south of Loder Road. The code provides for flexibility in its width and shape, provided there remains a clearly identifiable and continuous open space. It may be designed as a series of smaller spaces that are clearly connected by open space. It may be designed

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as a series of smaller spaces that are clearly connected by open space. If buildings are incorporated as part of the central park, they must include primary uses which are open to the public. Civic buildings are encouraged adjacent to the central park. Streets may cross the park as needed. The park is an opportunity to locate and design low impact storm water facilities as an amenity for adjacent urban uses.

East Ridge

The East Ridge is a beautiful edge to the site that should be planned as a publicly accessible amenity and protected resource area. The natural resource inventory identified important resources and opportunities for habitat restoration in the riparian areas of Thimble Creek. In addition, Lidar mapping and slope analysis identified steeper slopes (greater than 15%) that are more difficult to develop than adjacent flat areas of the concept plan. The sanitary sewer analysis noted that lower areas on the east

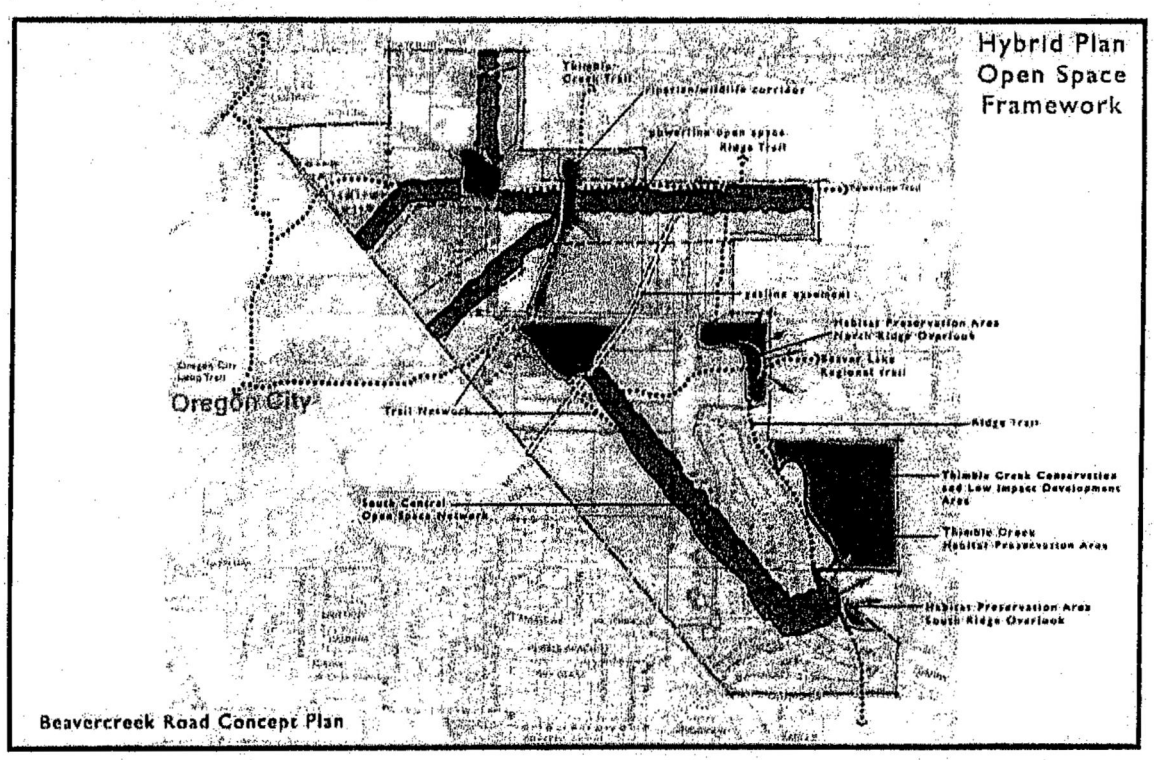

Figure 13 - Open Space Framework

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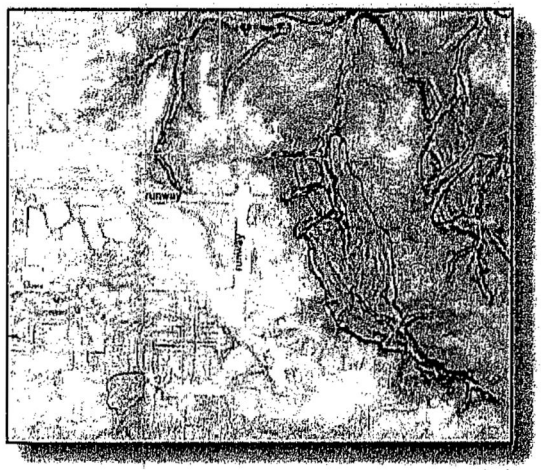

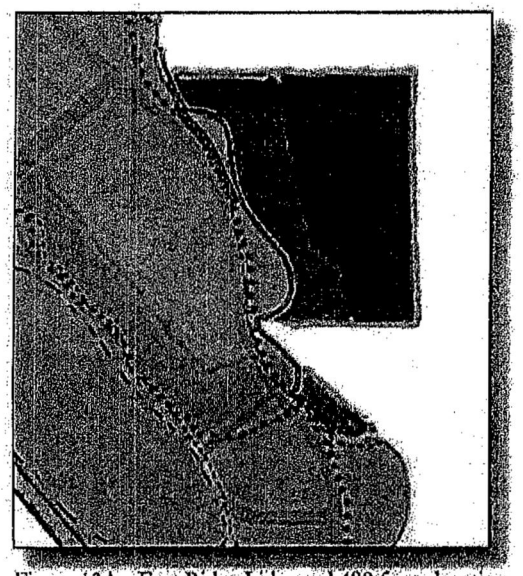

Figure 13A - East Ridge Lidar and 490 foot elevation

ridge could not be readily served with gravity systems - they would require private pump facilities. For all of these reasons, it is recommended here that an East Ridge open space and conservation area be designated.

The plan and code call for:

- Establishing the Class I and II Riparian area (per Metro mapping) plus 200 feet as a protected open space area. No development is permitted, except for very limited uses such as trails.
- Between the west edge of the above referenced protected open space area and the 490 foot elevation (MSL), establish a conservation area within which the following provisions apply:

  a. A minimum of 50% of the conservation area must be open space. No residential uses are permitted.

  b. All development must be low impact with respect to grading, site design, storm water management, energy management, and habitat.

  c. Building heights must not obscure views from the 490 foot elevation of the ridge.

  d. Open space areas must be environmentally improved and restored.

- Establishing a limit of development that demarks the clear edge of urban uses and a "window" to adjacent natural areas. In the central area of the est ridge, the "window" must be a minimum of 700 feet of continuous area and publicly accessible. The specific location of the "window" is flexible and will be establishing as part of a master plan.
- Creating two scenic view points that are small public parks, located north and south of the central area.
- Creating an East Ridge Trail - the location of the trail is flexible and will be established during master planning. It will be located so as to be safe, visible, and connect the public areas along the ridge. Along the "window" area described above, it will be coordinated with the location of the adjacent East Ridge Parkway.

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Transportation

In summary, the key elements of the Concept Plan transportation strategy are to:

- Plan a mixed use community that provides viable options for internal trip making (i.e. many daily needs provided on-site), transit use, maximized walking and biking, and re-routed trips within the Oregon City area.
- Improve Beavercreek Road as a green street boulevard.
- Create a framework of collector streets that serve the Beavercreek Road Concept Plan area.
- Require local street and pedestrian way connectivity.
- Require a multimodal network of facilities that connect the Beavercreek Road Concept Plan area with adjacent areas and surrounding transportation facilities.
- Provide an interconnected street system of trails and bikeways.
- Provide transit-attractive destinations.
- Provide a logical network of roadways that support the extension of transit services into the Beavercreek Road Concept Plan area.
- Use green street designs throughout the plan.
- Update the Oregon City Transportation System Plan to include the projects identified in the Beavercreek Road Concept Plan, provide necessary off-site improvements, and, assure continued compliance with Oregon's Transportation Planning Rule.

Streets

Figure 14 illustrates the street plan. Highlights of the plan include:

- *Beavercreek as a green boulevard.* The cross-section will be a 5 lane arterial to Clairmont, then a 3 lane arterial (green street boulevard) from Clairmont to UGB. The signalization of key intersections is illustrated on the Street Plan.
- *Center Parkway as a parallel route to Beavercreek Road.* This new north-south route provides the opportunity to completely avoid use of Beavercreek Road for trips between Old Acres and Thayer Road. This provides a much-needed separation of local and through trips, as well as an attractive east-side walking and biking route. Major cross-street intersections, such as Loder, Meyers and Glen Oak may be treated with roundabouts or other treatments to help manage average speeds on this street. Minor intersections are likely to be stop-controlled on the side street approaches. The alignment of Center Parkway along the central open space is intended to provide an open edge to the park. The cross-section for Center Parkway includes a multi-use path on the east side and green street swale. Center Parkway is illustrated as a three-lane facility. Depending on land uses and block configurations, it may be able to function well with a two lane section and left turn pockets at selected locations.
- *Ridge Parkway as a parallel route to Center Parkway and Beavercreek Road.* The section of Ridge Parkway south of the Glen Oak extension is intended as the green edge of the neighborhood. This will provide a community "window" and public walkway adjacent to the undeveloped natural areas east of the parkway. Ridge Parkway should be two lanes except where left turn pockets are needed. Major intersections south of Loder are likely to only require stop control of the side street, if configured as "tee" intersections. Mini roundabouts could serve as a suitable option, particularly if a fourth leg is added.
- *Ridge Parkway.* Ridge Parkway was chosen to extend as the through-connection south of the planning area to Henrici Road. Center Parkway and Ridge Parkway are both recommended for extension to the north as long-term consideration for Oregon City and Clackamas County during the update of respective Transportation System Plans. It is beyond the scope of this study to identify and determine each route and the feasibility of such extensions. Fatal flaws to one or both may be discovered during subsequent planning. Nonetheless, it is prudent at this level of study, in this area of the community, to identify opportunities to efficiently and systematically expand the transportation system to meet existing and future needs.

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- *Extensions of Clairmont, Meyers, Glen Oak Roads and the south entrance through to the Ridge Parkway.* These connections help complete the network and tie all parts of the community to adjacent streets and neighborhoods.
- *Realignment of Loder Road at its west end. Loder is recommended for re-configuration to create a safer "T" intersection.* The specific location of the intersection is conceptual and subject to more site specific planning.

The streets of the Concept Plan area are recommended to be green streets. This is an integral part of the storm water plan and overall identity and vision planned for the area. The green street cross-sections utilize a combination of designs: vegetated swales, planter islands, curb extensions, and porous pavement. Figures 15 – 19 illustrate the recommended green street cross-sections. These are intended as a starting point for more detailed design.

Trails

Figure 14 also illustrates the trail network. The City's existing Thimble Creek Trail and Metro's Beaver Lake Regional Trail have been incorporated into the plan. New trails include the Powerline Corridor Trail, multi-use path along Center Parkway, and the Ridge Trail.

Transit

The Concept Plan sets the stage for future transit, recognizing that how that service is delivered will play out over time. Specifics of transit service will depend on the actual rate and type of development built, Tri-Met resources and policies, and, consideration of local options. Three options have been identified:

1. A route modification is made to existing bus service to Clackamas Community College (CCC) that extends the route through CCC to Beavercreek Road via Clairmont, then south to Meyers or Glen Oak, back to HWY 213, and back onto Molalla to complete the normal route down to the Oregon City Transit Center. To date, CCC has identified Meyers Road as a future transit connection to the college.
2. A new local loop route that connects to the CCC transit center and serves the Beavercreek Road Concept Planning area, the High School, the residential areas between Beavercreek and HWY 213, and the residential areas west of HWY 213 (south of Warner Milne).
3. A new "express" route is created from the Oregon City Transit Center, up/down HWY 213 to major destinations (CCC, the Beavercreek Road Employment area, Red Soils, Hilltop Shopping Center, etc.).

It is the recommendation of this Plan that the transit-oriented (and Use mix), density, and design of the Beavercreek Road area be implemented so that transit remains a viable option over the long term. The City should work with Tri-Met, CCC, Oregon City High School, and developers within the Concept Plan area to facilitate transit.

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Connectivity

The street network described above will be supplemented by a connected local street network. Consistent with the framework plan approach, connectivity is required by policy and by the standards in the code. The specific design for the local street system is flexible and subject to master plan and design review. Figure 20 illustrates different ways to organize the street and pedestrian systems. These are just three examples, and are not intended to suggest additional access to Beavercreek Road beyond what is recommended in Figure 14. The Plan supports innovative ways to configure the streets that are consistent with the goals and vision for the Beavercreek Concept Plan area.

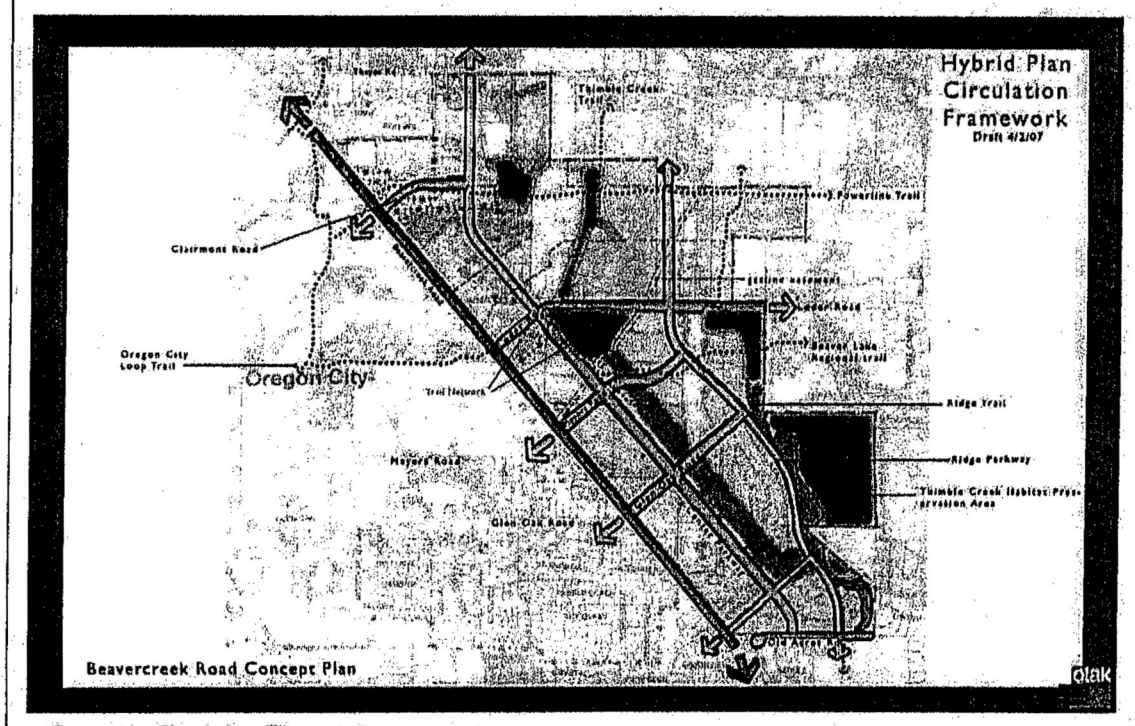
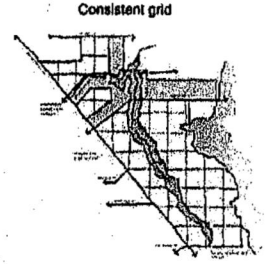


Figure 14 - Circulation Framework



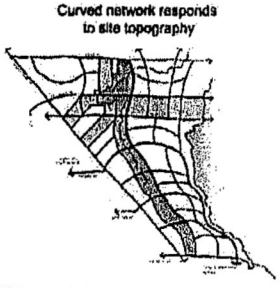


Figure 20 - Connectivity Diagrams

Conceptual only - See Figure 14 for recommended access points to Beavercreek Road.

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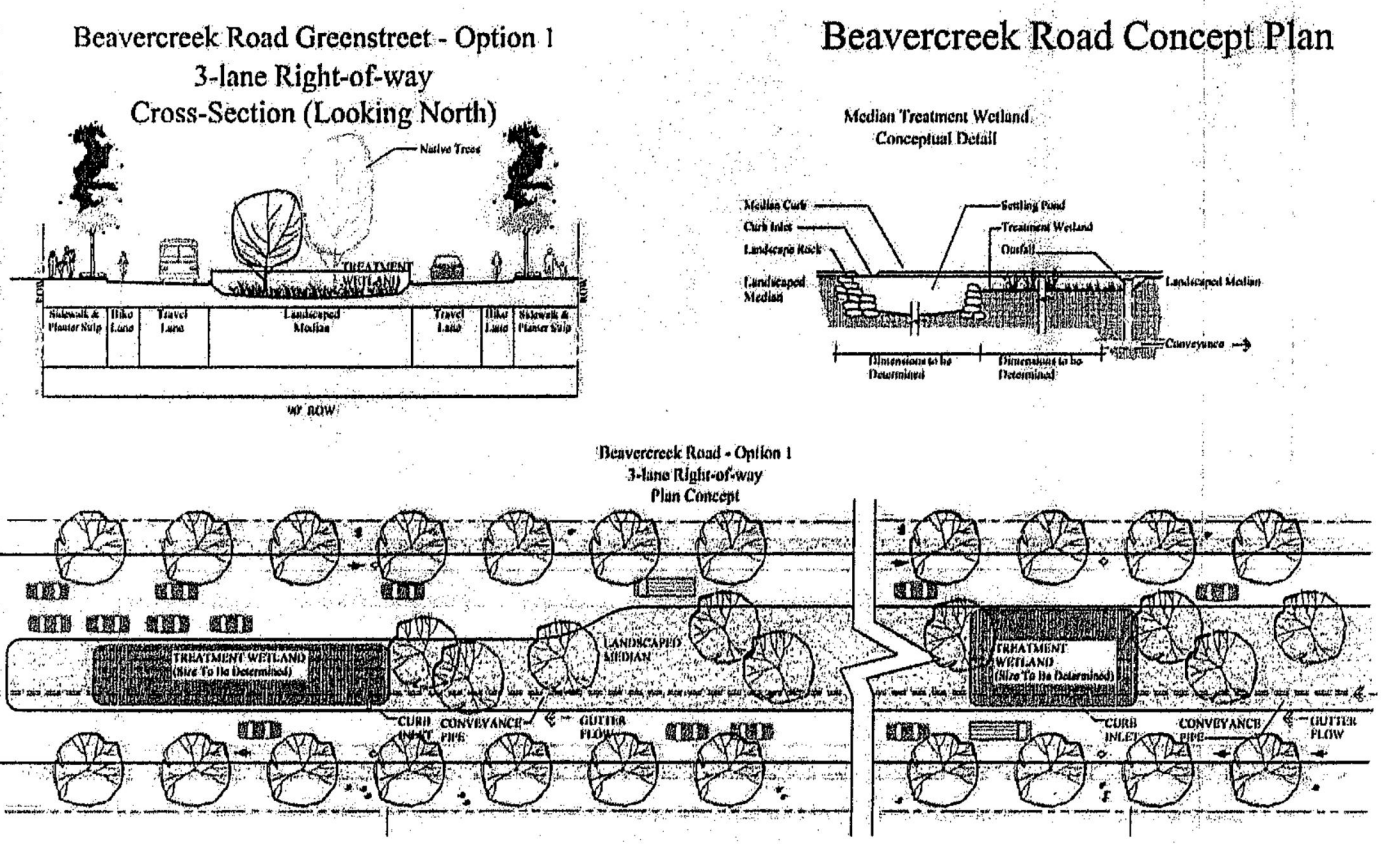

Figure 15 - Beavercreek Road Green Street

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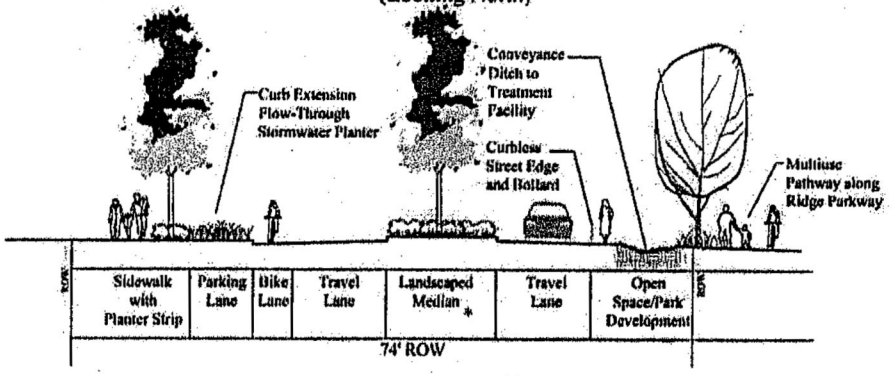
Ridge Parkway & Center Parkway

(Looking North)



Ridge Parkway & Center Parkway
Plan View

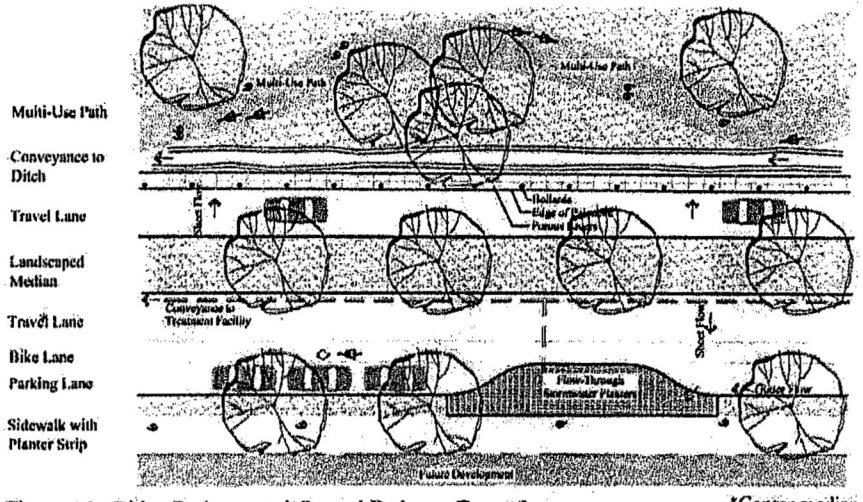


Figure 16 - Ridge Parkway and Central Parkway Green Streets

*Center median is optional for Ridge Parkway.

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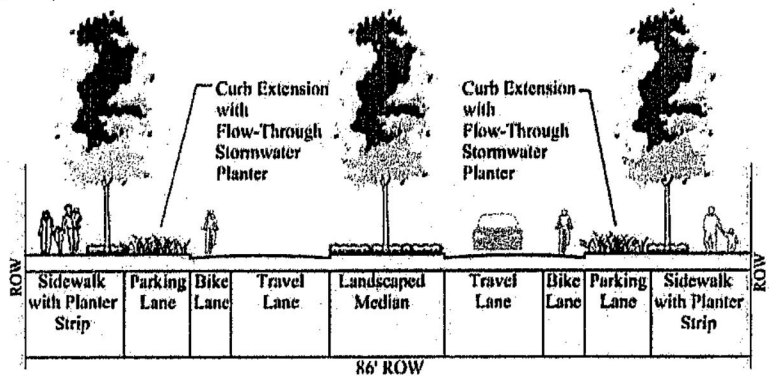
Collector Greenstreet
(Looking North)



Collector Greenstreet
Plan View

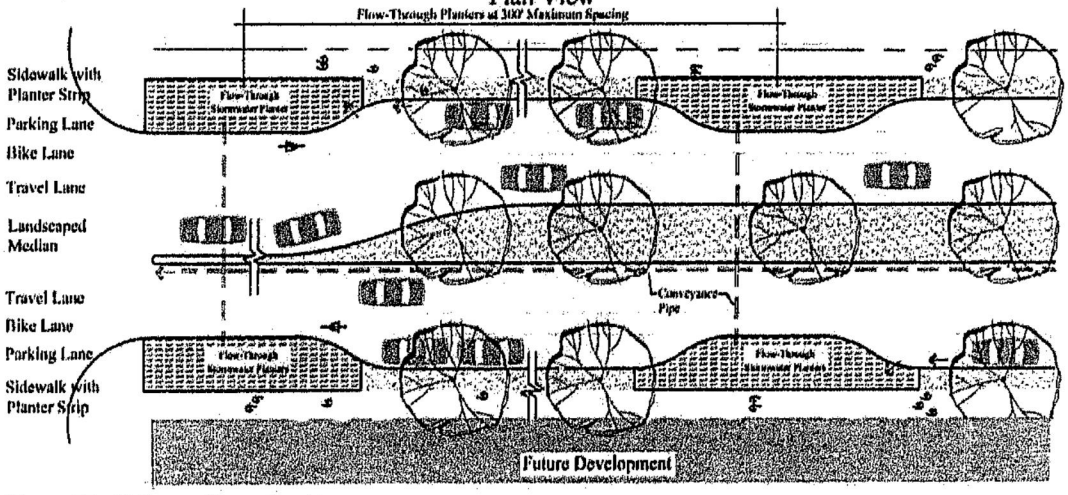


Figure 17 - Collector Green Street

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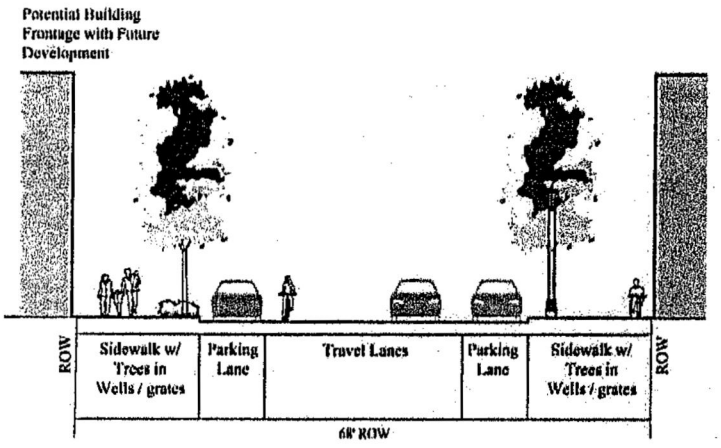
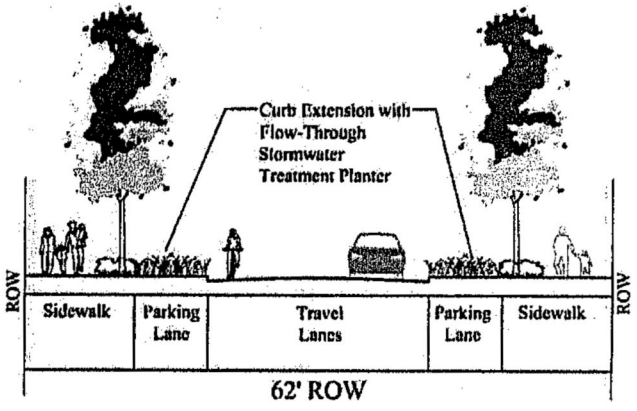
Main Street Collector



Neighborhood Greenstreet



Main Street Collector Plan View

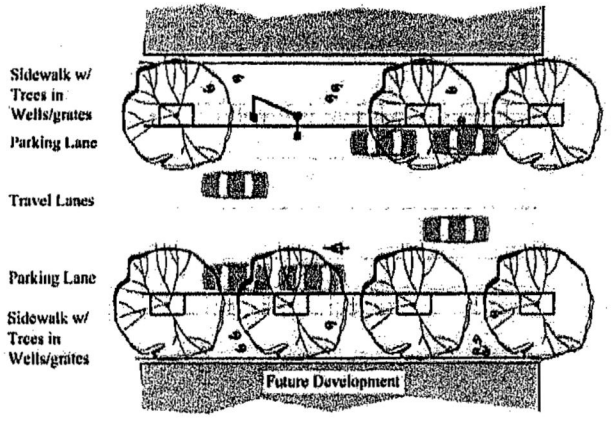


Figure 18 - Main Street Green Street

Neighborhood Greenstreet Plan View

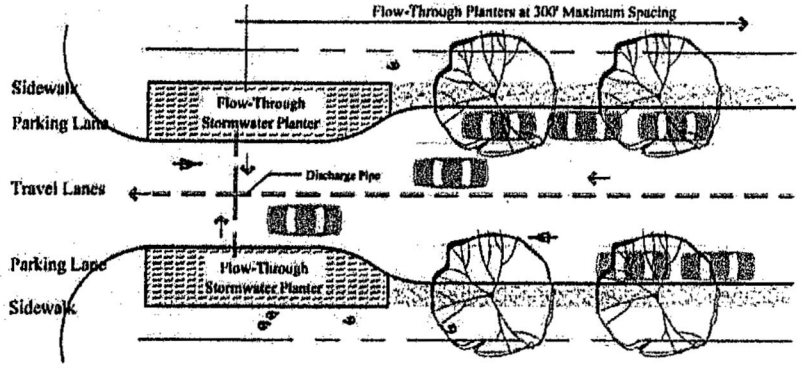


Figure 19 - Neighborhood Green Street

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Cost Estimate

A planning-level cost estimate analysis was conducted in order to approximate the amount of funding that will be needed to construct the needed improvements to the local roadway system, with the build-out of the Beavercreek Road Concept Plan. The table below lists these improvements and their estimated costs. These generalized cost estimates include assumptions for right-of-way, design, and construction.

For additional information, please see Technical Appendix, Sections C2 and G.

Roadway Improvements	Improvement	Estimated Cost
Beavercreek Road: Marjorie Lane to Clairmont Drive	Construct 5-lane cross-section to City standards	$6,300,000
Beavercreek Road: Clairmont Drive to Henrici Road	Construct 3-lane cross-section to City standards	$12,300,000
Clairmont Drive: Beavercreek Road – Center Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$2,400,000
Loder Road: Beavercreek Road to Center Parkway	Construct 3-lane cross-section to City standards and signalize Beavercreek Road intersection	$1,400,000
Loder Road: Center Parkway – East Site Boundary	Construct 3-lane cross-section to City standards	$4,200,000
Meyers Road: Beavercreek Road – Ridge Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$3,500,000
Glean Oak Road: Beavercreek Road – Ridge Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$3,400,000
Center Parkway	Construct new 3-lane collector with 12' multi-use path	$17,700,000
Ridge Parkway	Construct new 3-lane collector	$9,800,000
Total Roadway Improvements		$61,000,000
Intersection Only Improvements	**Improvement**	**Estimated Cost**
Beavercreek Road/Maplelane	Road Construct new WB right-turn lane	$250,000
Beavercreek Road/ Meyers Road	Construct new NB and SB through lanes	$5,000,000
Total Intersection Improvements		$5,250,000
TOTAL IMPROVEMENTS		*$66,250,000*

Transportation Cost Estimate

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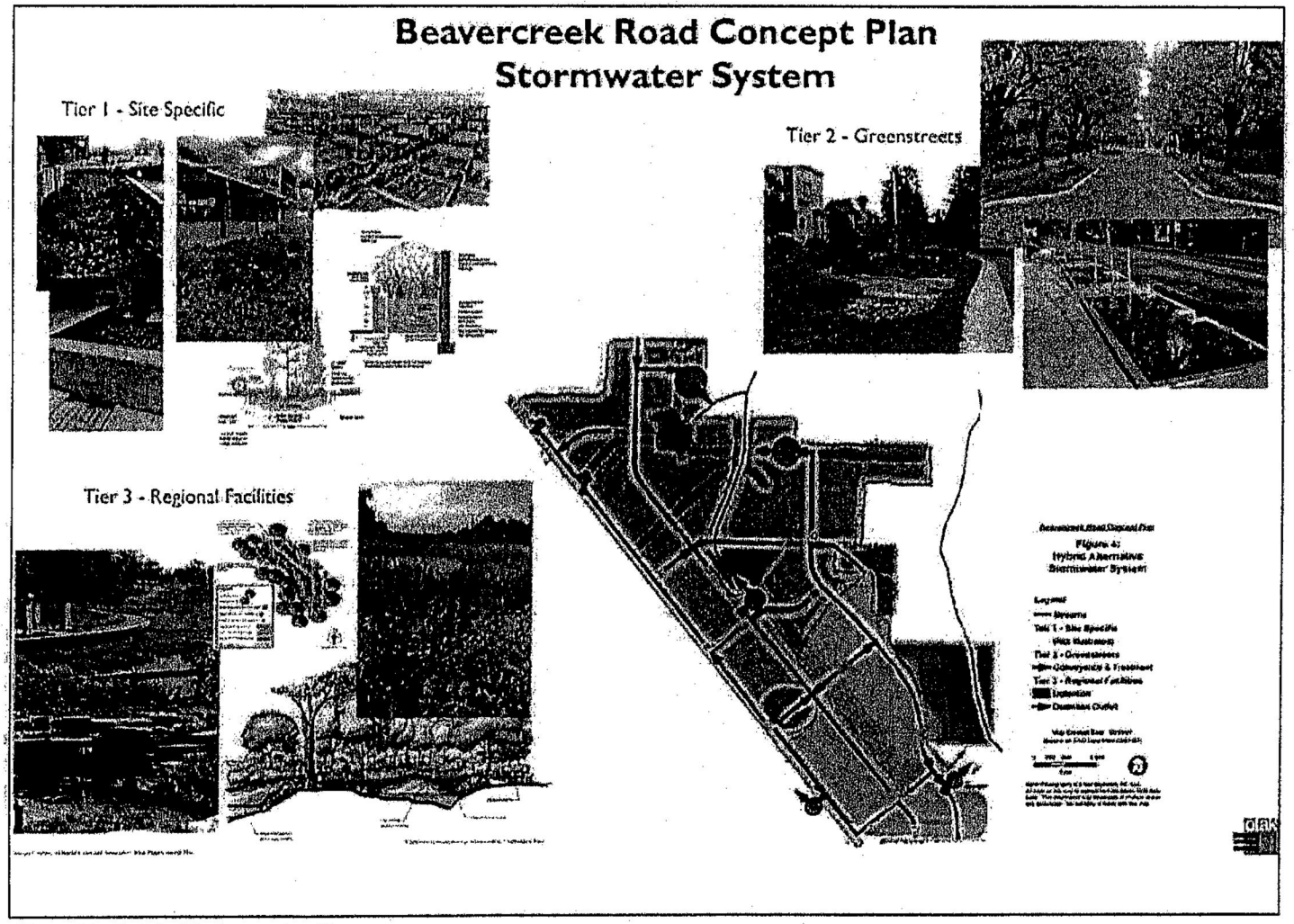

Figure 21 - Sustainable Stormwater Plan

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Storm Water and Water Quality

This Beavercreek Road stormwater infrastructure plan embraces the application of low-impact development practices that mimic natural hydrologic processes and minimize impacts to existing natural resources. It outlines and describes a stormwater hierarchy focused on managing stormwater in a naturalistic manner at three separate scales: site, street, and neighborhood.

Tier 1 – Site Specific Stormwater Management Facilities (Site)

All property within the study area will have to utilize on-site best management practices (BMPs) to reduce the transport of pollutants from their site. Non-structural BMPs, such as source control (e.g. using less water) are the best at eliminating pollution. Low-impact structural BMPs such as rain gardens, vegetated swales, pervious surface treatments, etc. can be designed to treat stormwater runoff and reduce the quantity (flow and volume) by encouraging retention/infiltration. They can also provide beneficial habitat for wildlife and aesthetic enhancements to a neighborhood. These low-impact BMP's are preferred over other structural solutions such as underground tanks and filtration systems. Most of these facilities will be privately maintained.

Tier 2 – Green Street Stormwater Management Facilities (Street)

Green Streets are recommended for the entire Beavercreek Concept Plan area. The recommended green street design in Figures 15 - 19 use a combination of vegetated swales or bioretention facilities adjacent to the street with curb cuts that allow runoff to enter. Bioretention facilities confined within a container are recommended in higher density locations where space is limited or is needed for other urban design features, such as on-street parking or wide sidewalks. The majority of the site is underlain with silt loam and silty clay loam. Both soils are categorized as Hydrologic Soil Group C and have relatively slow infiltration rates.

The recommended green streets will operate as a collection and conveyance system to transport stormwater from both private property and streets to regional stormwater facilities. The conveyance facilities need to be capable of managing large storm events that exceed the capacity of the swales. For this reason, the storm water plan's conveyance system is a combination of open channels, pipes, and culverts. Open channels should be used wherever feasible to increase the opportunity for stormwater to infiltrate and reduce the need for piped conveyance.

Tier 3 – Regional Stormwater Management Facilities (Neighborhood)

Regional stormwater management facilities are recommended to manage stormwater from larger storms that pass through the Tier 1 and Tier 2 facilities. Figure 21 illustrates seven regional detention pond locations. Coordinating the use of these for multiple properties will require land owner cooperation during development reviews, and/or, City initiative in advance of development.

The regional facilities should be incorporated into the open space areas wherever possible to reduce land costs, and reduce impacts to the buildable land area. Regional stormwater facilities should be designed to blend with the other uses of the open space area, and can be designed as a water feature that offers educational or recreational opportunities. Stormwater runoff should be considered as a resource, rather than a waste stream. The collection and conveyance of stormwater runoff to regional facilities can offer an opportunity to collect the water for re-use.

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Discharge Locations

Post-development stormwater runoff rates from the Beavercreek Road Concept Plan Area will need to match pre-development rates at the existing discharge locations, per City Stormwater Design Standards. Since there are several small discharge locations to Thimble Creek, flow control facilities may not be feasible at all discharge locations. In this situation, over-detention is needed at some discharge locations to compensate for the un-detained areas so that flows in Thimble Creek at the downstream point of compliance meet City Stormwater Design Standards for flow control.

The stormwater infrastructure for the Beavercreek Road Concept Plan Area is estimated to cost between $7.8 million and $9.4 million for base construction. When construction contingencies, soft costs (engineering, permitting, construction management), and land acquisition, the total cost is estimated at $15 to $23 million.

Water

The proposed water infrastructure plan creates a network of water supply pipelines as the "backbone" system. In addition, as individual parcels are developed, a local service network of water mains will be needed to serve individual lots.

Since there are two pressure zones in the concept plan area, there will need to be a network of pipes for each of the two zones. These systems are illustrated on Figure 22. The Fairway Downs Pressure Zone will serve the south one-third of the concept plan area. This zone receives water from the system reservoirs. But, because this zone is at the highest elevation in the entire water system, pressure from the reservoir system is insufficient to maintain a usable pressure to customers in this part of the system. The water pressure is increased by using a booster pump station located at the intersection of Glen Oak Road and Beavercreek Road.

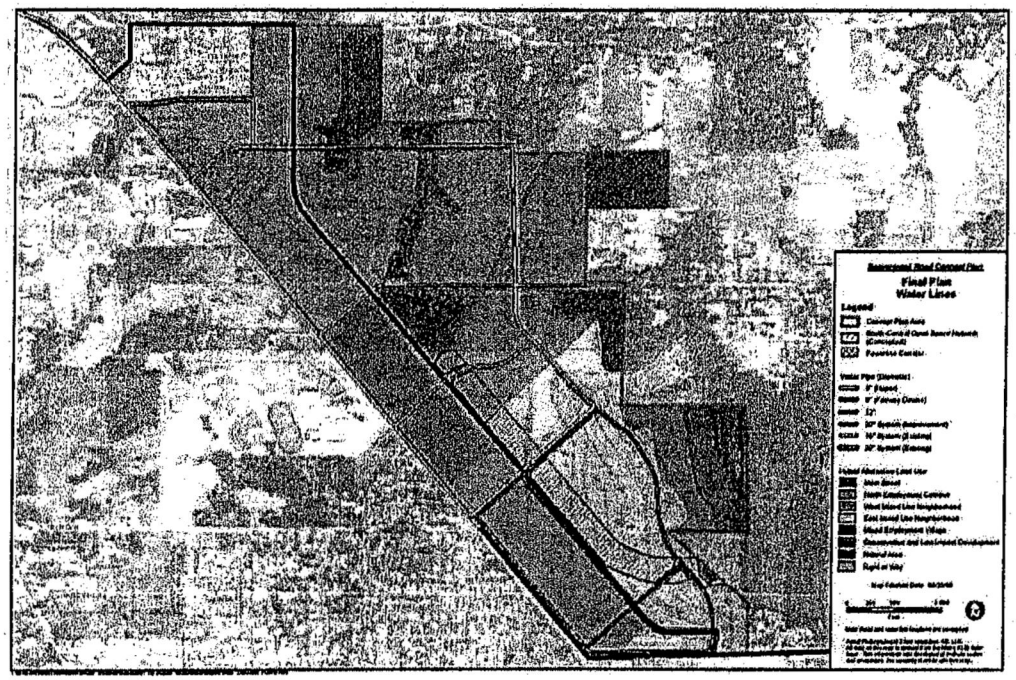

Figure 22 - Water Plan

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In the Fairway Downs Pressure Zone, the majority of the water mains will be installed in the proposed public rights-of-way. However, a small portion of the system may need to be in strip easements along the perimeter of the zone at the far southeast corner of the concept plan area. The system layout shown is preliminary and largely dependent on future development and the final system of internal (local) streets. Additional mains may be needed or some of the water mains shown may need to be removed. For instance, if the development of the residential area located at the southeast end of the site, adjacent to Old Acres Road, includes internal streets, the water mains shown along the perimeter of the site may be deleted because service will be provided from pipes that will be installed in the internal street system.

Some of the planned streets in the Fairway Downs Pressure Zone will contain two water mains. One water main will provide direct water service to the area from the booster pump system. The other water main will carry water to the lower elevation areas in the Upper Pressure Zone.

The Upper Pressure Zone will serve the north two-thirds of the concept plan area. The "backbone" network for the Upper Pressure Zone will have water mains that are pressured from the Henrici and Boynton reservoirs. A single 12-inch water main will run parallel with Beavercreek Road through the middle of concept plan area. This water conduit will serve as the "spine" for the Upper Pressure Zone. A network of 8-inch water pipes will be located in the public rights-of-way and will provide water to the parcels that are identified for development. The system can be extended easterly on Loder Road, if needed.

The preliminary design ensures that the system is looped so that there are no dead-end pipes in the system. Along a portion of the north perimeter, approximately 1,600 feet of water pipe will be needed to complete a system loop and provide water service to adjacent lots. This pipe will share a utility easement with a gravity sanitary sewer and a pressure sewer. There may also be stormwater facilities in this same alignment.

In the Water Master Plan, under pipeline project P-201, there is a system connection in a strip easement between Thayer Road and Beavercreek Road at the intersection with Marjorie Lane. Consideration should be given to routing this connection along Thayer Road to Maplelane Road and then onto Beavercreek Road. This will keep this proposed 12-inch main in the public street area where it can be better accessed.

The estimated total capital cost for the "backbone" network within the concept plan area will be in the area of $5,400,000. This estimate is based the one derived for Alternative D, which for concept planning purposes, is representative of the plan and costs for the final Concept Plan. This is in addition to the $6.9 million of programmed capital improvement projects that will extend the water system to the concept plan area. All estimates are based on year 2003 dollars. Before the SDC can be established, the estimates will need to be adjusted for the actual programmed year of construction.

For additional information, please see Technical Appendix, Sections C6 and H3.

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Sanitary Sewer

The northern half of the concept area drains generally to the north and follows the natural land contours formed by the uppermost portion of Thimble Creek. The proposed sanitary sewer system in the vicinity of Loder Road will follow the north-south street rights-of-way. This part of the system will terminate at the low point of the concept plan area in a wetwell. A sanitary lift station over the wetwell will pump the wastewater uphill in a westerly direction to a point that it can be discharged into a gravity sewer that will flow west to the trunk sewer in Beavercreek Road. The lift station and pressure sewer project has been identified in the Sanitary Sewer Master Plan as projects BC-COL-5 and 6. A utility bridge that will carry the pressure pipe and gravity sewer pipe over Thimble Creek is anticipated.

A short road access to the pump station that is parallel to Thimble Creek will also be needed.

The majority of the southern half of the concept area will have a gravity sanitary sewer system that will convey waste water to the existing 2,400-foot long trunk sewer in Beavercreek Road, which currently extends from Highway 213 to approximately 800 feet south of Marjorie Lane. This portion of the system can be built in the planned roadways and in the existing Beavercreek Road right-of-way. This portion of the system can be built in the planned roadways. A portion of the system, approximately 900 feet long, will need to be built in the current alignment of Loder Road so that the gravity sewer can be connected to the trunk sewer in Beavercreek Road. The circulation plan includes a realignment of Loder Road. Therefore, a sewer easement will need to be retained across the future parcel that now includes the current Loder Road alignment.

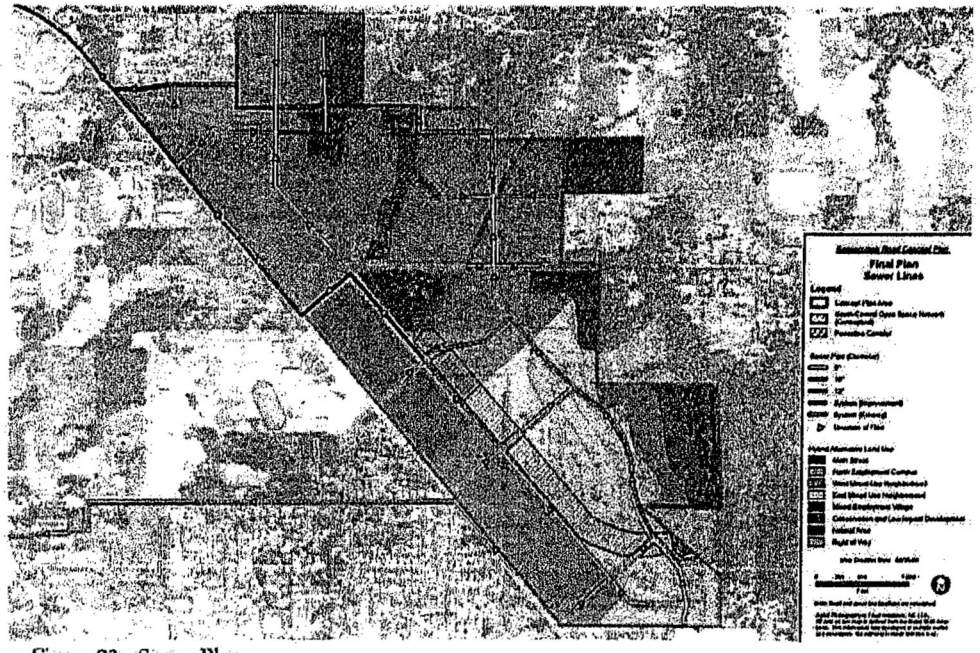

Figure 23 - Sewer Plan

The approximate elevation of 490 ft (MSL) is important in the southern half of the concept plan area relative to gravity sewer service. Roadways and development constructed above 490 ft will most likely allow for gravity sewer service. If land uses requiring sanitary sewer service (or roadways with sewer underneath) are located lower than 490 ft, individual pump stations and pressurized services may be required.

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The estimated total capital cost will be in the vicinity of $4,400,000. This estimate is based on the cost analysis for Alternative D, which is comparable. This is in addition to the $2.3 million in sanitary sewer master plan capital costs that needed to bring the sanitary sewers to the concept plan area. These estimates are based on year 2003 dollars. The estimates will need to be adjusted for the programmed year of construction.

For additional information, please see Technical Appendix, Sections C6 and H2.

Funding strategies

For water, sewer, storm water and parks, there are five primary funding sources and strategies that can be used:

- *System development charges (SDCs)*– Oregon City requires developers to pay SDCs for new development. Developers pay these charges up front based on the predicted impact of the new development on the existing infrastructure and the requirements it creates for new improvements. Although the charges are paid by the developer, the developer may pass on some of these costs to buyers of newly developed property. Thus, SDCs allocate costs of development to the developer and buyers of the new homes or new commercial or industrial buildings.
- *Urban renewal/tax increment financing* - Tax increment financing is the primary funding vehicle used within urban renewal areas (URA). The tax increment revenue is generated within a URA when a designated area is established and the normal property taxes within that area are 'frozen' (often called the frozen base). Any new taxes generated within that area through either property appreciation or new investment becomes the increment. Taxing jurisdictions continue to collect income from the frozen base but agree to release assessed value above the base to the URA. The URA then can issue bonds to pay for identified public improvements. The tax increment is used to pay off the bonds.

Oregon City has the authority to establish an URA. The Beavercreek Road Concept Plan Area would have to meet the definition of 'blight' as defined in ORS 457. It is likely to meet 'blight' standards because its existing ratios of improvement-to-land values are likely low enough to meet that standard.

- *Local Improvement Districts* - Local Improvement Districts (LIDs) are formed for the purpose of assessing local property owners an amount sufficient to pay for a project deemed to be of local benefit. LIDs are a specific type of special assessment district, which more broadly includes any district that is formed within an existing taxing district to assess specific property owners for some service that is not available throughout the larger district. The revenues from the LID assessments are used to pay the debt payments on a special assessment bond or a note payable issued for the capital improvements.

LID assessments increase costs for property owners. Under a LID the improvements must increase the value of the taxed properties by more than the properties are taxed. LIDs are typically used to fund improvements that primarily benefit residents and property owners within the LID.

- *Bonds* - Bonds provide a financing mechanism for local governments to raise millions of dollars for parks and other capital projects. The City could back a bond with revenue from a LID, the Urban Renewal Districts, or property taxes citywide. General obligation (GO) bonds issued by local governments are secured by a pledge of the issuer's power to levy real and personal property taxes. Property taxes necessary to repay GO bonds are not subject to limitation imposed by recent property tax initiatives. Oregon law requires GO bonds to be authorized by popular vote.

Bond levies are used to pay principal and interest for voter-approved bonded debt for capital improvements. Bond levies typically are approved in terms of dollars, and the tax rate is calculated as the total levy divided by the assessed value in the district.

- Developer funded infrastructure – The City conditions land use approvals and permits to include required infrastructure. Beyond

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the sources cited above, developers cover the remaining costs for the infrastructure required for their development.

Additional funding tools that could be investigated and implemented within the Concept Plan area include a Road District, a County Service District, Intergovernmental Agreements, an Advance Finance District, a Certificate of Participation, and a Utility Fee. There are benefits and limitations associated with each of the funding options that should be reviewed carefully before implementing.

For transportation infrastructure, the same sources as cited above are available. For larger facilities, such as Beavercreek Road, additional funds may be available. They include Metro-administered federal STP and CMAQ funding, and, regional Metro Transportation Improvement Plan funding. These sources are limited and extremely competitive. County funding via County SCSs should also be considered a potential source for Beavercreek Road. Facilities like Beavercreek Road are often funded with a combination of sources, where one source leverages the availability of another.

Sustainability

One of the adopted goals is: The Beavercreek Road Concept Plan Area will be a model of sustainable design, development practices, planning, and innovative thinking.

Throughout the development of the concept plan, sustainability has been paramount in guiding the CAC, the City, and the consultant team. The final plan assumes that sustainable practices will be a combination of private initiatives (such as LEED certified buildings), public requirements (green streets and low impact development policies), and public-private partnerships. It is recommended that City use incentives, education and policy support as much as possible for promoting sustainability at Beavercreek Road. Some initiatives will require regulation and City mandates, but caution and balance should be used. At the end of the day, it is up to the private sector to invest in sustainable development. The Beavercreek Road's site's legacy as a model of sustainable design will depend, in large part on the built projects that are successful in the marketplace and help generate the type of reputation that the community desires and deserves.

The key to fulfilling the above-listed goal will be in the implementation. For the City's part, implementation strategies that support sustainable design will be included within the Oregon City Comprehensive Plan policies and Code provisions. They will be applied during master plan and design review permitting. Some of these strategies will be "required" while other are appropriate to "encourage." These sustainability strategies include:

- Energy efficiency
- Water conservation
- Compact development
- Solar orientation
- Green streets/infrastructure
- Adaptive reuse of existing buildings/infrastructure
- Alternative transportation
- Pedestrian/Cyclist friendly developments
- Natural drainage systems
- Tree preservation and planting to "re-establish" a tree canopy
- Minimizing impervious surfaces
- Sustainability education (builder, residents, businesses and visitors)
- Collaboration with "local" institutional and economic partners, particularly Clackamas Community College and Oregon City High School
- Community-based sustainable programs and activities

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Principles for Sustainable Community Design

The CAC discussed Principles for Sustainable Community Design that were offered by one of the members. These provide a good framework for how the Concept Plan is addressing sustainability.

Mix Land Uses - Promote a mix of land uses that support living wage jobs and a variety of services.

All of the sub-districts are, to some degree, mixed use districts. The Mixed Use Village, Main Street and West Mixed Use Neighborhood allow a rich mix of employment, housing, and services. Taken together, the entire 453 acre area will be a complete community.

Housing Types - Create a range of housing choices for all ages and incomes.

The concept plan includes housing in many forms: mixed use formats in the 3-5 story buildings, high density apartments and condominiums, live-work units, townhomes, small cottage lots, and low density single family homes.

Walk-ability - Make the Neighborhood "walkable" and make services "walk-to-able."

The plan provides a street and trail framework. The code will require a high level of connectivity and maximum block sizes for most sub-districts. Services are provided throughout the plan as part of mixed use areas and a broad range of permitted uses.

Transportation - Provide a range of transportation options using a connected network of streets and paths.

The plan provides for all modes: walking, biking, driving and transit. Transit-supportive land use is specifically required in the Mixed Employment Village, Main Street and West Mixed Use Neighborhoods. The framework of connected streets and paths will be supplemented by a further-connected system of local streets and walking routes.

Open Space - Protect and maintain a functioning green space network for a variety of uses.

Open space is distributed throughout the plan. New green spaces are connected with existing higher-value natural areas.

Integrate Systems - Integrate ecological and man-made systems to maximize function, efficiency and health.

Infrastructure systems (green storm water, multi-modal transportation) are highly integrated with the open space network and array of land uses. It will be important for the implementation of the plan to further integrate heating, cooling, irrigation and other man-made systems with the Concept Plan framework.

Ecological Health - Manage natural resources to eliminate pollution to watersheds and lesson impact on habitat and green infrastructure.

Methods to achieve this principle are identified in the Stormwater Infrastructure Report. Additionally, the code requires measures to preserve natural resources and eliminate pollution to watersheds necessary to achieve this principle.

Reuse, Recycle, Regenerate - Reuse existing resources, regenerate existing development areas.

The principle will be applied primarily at time of development and beyond.

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Green Buildings - Build compact, innovative structures that use less energy and materials.

The draft code includes provisions for green buildings. This is a new area for the City to regulate, so a public-private Green Building Work Group is recommend to explore issues, build consensus, and develop specific code recommendations.

Work Together - Work with community members and neighbors to design and develop.

The development of the alternatives and the recommended plan has been a collaborative process with all project partners. The concept plan process through implementation and subsequent project area developments will continue to be a collaborative process where all stakeholders are invited to participate.

For additional information, please see Technical Appendix, Sections C3, D, and F.

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Metrics

Land Use

The following table summarizes the acreages for major land uses on the Concept Plan.

Land Use Category (acres)	Hybrid
North Employment Campus (adjusted gross acreage)*	149
Mixed Employment Village	26
Main Street	10
West Mixed Use Neighborhood	22
East Mixed Use Neighborhood	77
Total Acres of "built" land use	**284**
Other Land Uses (not "built")	
Parks/Open Space/Natural Areas (Total)**	113
Major ROW+	56
Existing Uses (unbuildable)	0
Total Project Area Gross Acres	**453**

*Adjusted gross acreage is the sum of 50% of the employment land use shown under the powerline easement plus all other unconstrained employment land use areas. Calculations shown below:

Land Use Category (acres)	Hybrid
Total North Employment Campus	175
Unconstrained NEC	**123**
Employment with powerline overlay	52
Useable portion of powerline overlay (50%)	**26**
North Employment Campus (adjusted gross acreage)*	**149**

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Housing and Employment Estimates

The Concept Plan has an estimated capacity for approximately 5000 jobs and 1000 dwellings. The following table displays the estimates and assumptions used to estimate jobs and housing. On a net acreage, these averages are 33 jobs/ net developable acre and 10.3 dwellings/ net developable acre.

Land Use Category	Hybrid Gross Acres	Hybrid Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
North Employment Campus (adjusted gross acreage)	149	127	0.3	450	3,678		
Mixed Employment Village	26	21	0.44	350	1,139		
Main Street****	10	8	0.44	350	219	25	100
West Mixed Use Neighborhood	22	18			15	22	387
East Mixed Use Neighborhood	77	62			21	8.7	536
Total # of Jobs					5,073		
Total # of Housing Units							1,023
Total Acres of Developed Land++	284	235					

*For Hybrid - Net acres equals gross acres minus 15% for local roads and easements in Employment, Mixed Employment, Mixed Use, and residential areas assume 20% for local roads and easements

** Based on Metro 2002-2022 Urban Growth Report: An Employment Land Need Analysis. Includes total on site employment (full and part time). Mixed Employment FAR and job density reflects a mix of office, tech/flex, and ground floor retail.

***Number of Jobs in Employment, Mixed Employment, Mixed Use calculated by multiplying total acres by the FAR; Converting to square feet; and dividing by number of jobs/square foot. Jobs in residential areas (Work at Home Jobs) estimated at 4% (potential could be as high as 15%).

**** Mixed Use land use assumes 50% of acreage devoted to commercial uses and the remaining 50% devoted to vertical mixed use.

+Number of units calculated by multiplying total net acres of residential land use by average units per acre

++Includes 50% of useable power line corridor (26 acres total) as part of developed land (included in Employment land area)

+++Does not include powerline corridor acreage as part of developed land

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VI. Goals and Policies

The following goals and policies are recommended for adoption into the Oregon City Comprehensive Plan. The goal statements are those developed by the Citizen Advisory Committee as goals for the plan.

Goal 1 Complete and Sustainable Community

Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Policy 1.1

Adopt new comprehensive plan and zone designations, and development code, that implement the Beavercreek Concept Plan. Require all development to be consistent with the Concept Plan and implementing code.

Policy 1.2

Establish sub-districts to implement the Concept Plan. The sub-districts are:

North Employment Campus – NEC

The purpose of the North Employment Campus is to provide for the location of family wage employment that strengthens and diversifies the economy. The NEC allows a mix of clean industries, offices serving industrial needs, light industrial uses, research and development and large corporate headquarters. The uses permitted are intended to improve the region's economic climate, promote sustainable and traded sector businesses, and protect the supply of sites for employment by limiting incompatible uses. The sub-district is intended to comply with Metro's Title 4 regulations. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College (CCC) are encouraged to help establish a positive identity for the area and support synergistic activity between CCC and NEC properties. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

Mixed Employment Village – MEV

The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

Main Street – MS

The purpose of this small mixed-use center is to provide a focal point of pedestrian activity. The MS allows small scale commercial, mixed use and services that serve the daily needs of the surrounding area. "Main Street" design will include buildings oriented to the street, and minimum of 2 story building scale, attractive streetscape, active ground floor uses and other elements that reinforce pedestrian oriented character and vitality of the area.

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West Mixed Use Neighborhood – WMU

The West Mixed Use Neighborhood will be a walkable, transit-oriented neighborhood. This area allows a transit supportive mix of housing, live/work units, mixed use buildings and limited commercial uses. A variety of housing and building forms is required, with the overall average of residential uses not exceeding 22 dwelling units per acre. The WMU area's uses, density and design will support the multi-modal transportation system and provide good access for pedestrians, bicycles, transit and vehicles. Site and building design will create a walkable area and utilize cost effective green development practices.

East Mixed Use Neighborhood – EMU

The East Mixed Use Neighborhood will be a walkable and tree-lined neighborhood with a variety of housing types. The EMU allows for a variety of housing types while maintaining a low density residential average not exceeding the densities permitted in the R-5 zone. Limited non-residential uses are permitted to encourage a unique identity, sustainable community, and in-home work options. The neighborhood's design will celebrate open space, trees, and relationships to public open spaces. The central open space, ridge open space scenic viewpoints, and a linked system of open spaces and trails are key features of the EMU. Residential developments will provide housing for a range of income levels, sustainable building design, and green development practices.

Policy 1.3

Within the Northern Employment Campus sub-district, support the attraction of family wage jobs and connections with Clackamas Community College.

Policy 1.4

Within the Mixed Employment Village and Main Street sub-districts, promote job creation, mixed use and transit oriented development. Adopt minimum densities, limitations on stand-alone residential developments, and other standards that implement this policy.

Policy 1.5

The Main Street sub-district may be located along the extension of Glen Oak Road and not exceed 10 gross acres. The specific configuration of the MS sub-district may be established as part of a master plan.

Policy 1.6

Within the West and East Mixed Use Neighborhoods, require a variety of housing types. Allow lot size averaging and other techniques that help create housing variety while maintaining overall average density.

Policy 1.7

Within the MEV, MS, WMU and EMU sub-districts, require master plans to ensure coordinated planning and excellent design for relatively large areas (e.g. 40 acres per master plan). Master plans are optional in the NEC due to the larger lot and campus industrial nature of the area.

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Goal 2 Model of Sustainable Design

Be a model of sustainable design, development practices, planning, and innovative thinking.

Policy 2.1

Implement the Sustainable Storm Water plan recommended in the Concept Plan. During site specific design, encourage innovative system design and require low impact development practices that manage water at the site, street and neighborhood scales.

Policy 2.2

Storm water facilities will be designed so they are amenities and integrated into the overall community design.

Policy 2.3

Support public and private sector initiatives to promote sustainable design, development practices and programs, including but not limited to:

- Energy efficiency
- Water conservation
- Compact development
- Solar orientation
- Green streets/infrastructure
- Adaptive reuse of existing buildings/infrastructure
- Alternative transportation
- Pedestrian/Cyclist friendly developments
- Natural drainage systems
- Tree preservation and planting to "re-establish" a tree canopy
- Minimizing impervious surfaces
- Sustainability education (builder, residents, businesses and visitors)
- Collaboration with "local" institutional and economic partners, particularly Clackamas Community College and Oregon City High School
- Community based sustainable programs and activities

Policy 2.4

Work with stakeholders and the community to develop LEED or equivalent green building standards and guidelines to apply in the Concept Plan area.

Goal 3 Green Jobs

Attract "green" jobs that pay a living wage.

Policy 3.1

Coordinate with county, regional and state economic development representatives to recruit green industry to the Concept Plan area.

Policy 3.2

Promote the Concept Plan area as a place for green industry.

Policy 3.3

Work with Clackamas Community College to establish programs and education that will promote green development within the Concept Plan area.

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Goal 4 Sustainable Industries

Maximize opportunities for sustainable industries that serve markets beyond the Portland region and are compatible with the site's unique characteristics.

Policy 4.1
As master plans are approved, ensure there is no net loss of land designated North Employment Campus.

Policy 4.2
Coordinate with County, regional and state economic development representatives to recruit sustainable industries that serve markets beyond the Portland region.

Goal 5 Natural Beauty

Incorporate the area's natural beauty into an ecologically compatible built environment.

Policy 5.1
Incorporate significant trees into master plans and site specific designs. Plant new trees to establish an extensive tree canopy as part of the creation of an urban community.

Policy 5.2
Provide scenic viewpoints and public access along the east ridge.

Policy 5.3
Protect views of Mt Hood and locate trails and public areas so Mt Hood can be viewed within the community

Policy 5.4
Establish open space throughout the community consistent with the Open Space Framework Plan. Allow flexibility in site specific design of open space, with no net loss of total open space area.

Policy 5.5
Protect steeply sloped and geologically sensitive areas along the east ridge from development.

Goal 6 Multi-modal Transportation

Provide multi-modal transportation links (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas.

Policy 6.1
Work with Tri-Met and stakeholders to provide bus service and other alternatives to the Concept Plan area.

Policy 6.2
As land use reviews and development occur prior to extension of bus service, ensure that the mix of land uses, density and design help retain transit as an attractive and feasible option in the future.

Policy 6.3
Ensure that local street connectivity and off-street pedestrian routes link together into a highly connected pedestrian system that is safe, direct, convenient, and attractive to walking.

Policy 6.4
The "walkability" of the Concept Plan area will be one of its distinctive qualities. The density of walking routes and connectivity should mirror

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

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the urban form – the higher the density and larger the building form, the "finer" the network of pedestrian connections.

Policy 6.5
Require trails to be provided consistent with the Concept Plan Circulation Framework.

Policy 6.6
Provide bike lanes on Beavercreek Road and all collector streets, except for Main Street. The City may consider off-street multi-use paths and similar measures in meeting this policy. Bike routes will be coordinated with the trails shown on the Circulation Framework.

Goal 7 Safety Along Beavercreek Road

Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Policy 7.1
Design Beavercreek Road to be a green street boulevard that maximizes pedestrian safety.

Policy 7.2
Work with the County and State to establish posted speeds that are safe for pedestrians and reinforce the pedestrian-oriented character of the area.

Policy 7.3
Control access along the east side of Beavercreek Road so that full access points are limited to the intersections shown on the Circulation Framework. Right in-Right-out access points may be considered as part of master plans or design review.

Goal 8 Oregon City High School and Clackamas Community College

Promote connections and relationships with Oregon City High School and Clackamas Community College.

Policy 8.1
Coordinate with OCHS and CCC when recruiting businesses and promoting sustainability. Within one year of adoption of the Concept Plan, the City will convene dialogue with OCHS, CCC and other relevant partners to identify target industries and economic development strategies that are compatible with the vision for the Concept Plan. Encourage curricula that are synergistic with employment and sustainability in the Concept Plan area.

Policy 8.2
Prior to application submittal, require applicants to contact OCHS and CCC to inform them and obtain early comment for master plans and design review applications.

Policy 8.3
Improving the level-of-service and investing in the Highway 213 corridor improves the freight mobility along Highway 213, which provides access to Beavercreek Road and the Concept Plan area. Protecting the corridor and intersections for freight furthers the City goal of providing living-wage employment opportunities in the educational, and research opportunities to be created with CCC and OCHS.

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

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Goal 9 Unique Sense of Place

Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.

Policy 9.1

Utilize master plans and design review to ensure detailed and coordinated design. Allow flexibility in development standards and the configuration of land uses when they are consistent with the comprehensive plan, development code, and vision to create a complete and sustainable community.

Policy 9.2

Implement human scale design through building orientation, attractive streetscapes, building form/architecture that is matched to the purpose of the sub-district, location of parking, and other techniques. The design qualities of the community should mirror the urban form – the higher the density and larger the buildings, the higher the expectation for urban amenities and architectural details.

Policy 9.3

Density should generally transition from highest on the west to lowest in the eastern part of the site.

Policy 9.4

Promote compatibility with existing residential areas at the north and south end of the Concept Plan area. Transition to lower densities, setbacks, buffers and other techniques shall be used.

Goal 10 Ecological Health

Manage water resources on site to eliminate pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

Policy 10.1

Utilize low impact development practices and stormwater system designs that mimic natural hydrologic processes, minimize impacts to natural resources and eliminate pollution to watersheds.

Policy 10.2

Prepare the Environmentally Sensitive Resource Area overlay to protect, conserve and enhance natural areas identified on the Concept Plan. Apply low-density base zoning that allows property owners to cluster density outside the ESRA and transfer to other sites.

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

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Appendix

1. Project Goals

2. Concept Plan Alternatives

3. GIS Analysis Map

4. Job and Housing Estimates

Appendix I

To:	Beavercreek Road Concept Plan Citizens and Technical Advisory Committees
From:	Tony Konkol
Date:	March 13, 2007
Subject:	Project Goals with Objectives

The following project goals and supplemental objectives were prepared using the *Ideas we Like, Principles of Sustainable Development,* and the Advisory Committees' long-term vision for the project area. This update reflects input by the Citizens and Technical Advisory Committees at their March 8th, 2007 meeting.

The Beavercreek Road Concept Plan Area will:

Goal

1. Create a **complete community**, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center;

   Objective 1.1
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 1.2
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
   Objective 1.3
   Continue to coordinate with the Oregon City School District and Clackamas Community College to identify partnerships, land needs and programs that would be beneficial to all parties and contribute to the community.
   Objective 1.4
   Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.
   Objective 1.5
   Become a model of sustainability that may be implemented throughout the City.
   Objective 1.6
   Allow the integration of housing and employment uses where practicable.
   Objective 1.7
   Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

2. Be a **model of sustainable design**, development practices, planning, and innovative thinking;

Objective 2.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
Objective 2.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
Objective 2.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.
Objective 2.4
Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.
Objective 2.5
Investigate development standards that offer incentives for developments that exceed energy efficiency standards and meets green development requirements and goals.

3. Attract **"green" jobs** that pay a living wage;
Objective 3.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
Objective 3.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
Objective 3.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.
Objective 3.4
Allow the integration of housing and employment uses where practicable.
Objective 3.5
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.
Objective 3.6
Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

4. Maximize opportunities for **sustainable industries that serve markets beyond the Portland region** and are compatible with the site's unique characteristics;

Objective 4.1

Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

Objective 4.2

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Objective 4.3

Support locally based and founded employers that provide living wages jobs.

Objective 4.4

Support the development of sustainable industries that utilize green design standards and development practices.

5. Incorporate the area's **natural beauty** into an ecologically compatible built environment;

Objective 5.1

Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Objective 5.2

Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Objective 5.3

Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Objective 5.4

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

6. Provide **multi-modal transportation links** (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas;

Objective 6.1

Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Objective 6.2

Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Objective 6.3

Explore local and regional transit opportunities that will increase non-single occupancy vehicle travel.

7. Implement **design solutions along Beavercreek Road** that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand;

   Objective 7.1
   Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.
   Objective 7.2
   Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

8. Promote connections and relationships with **Oregon City High School and Clackamas Community College;**

   Objective 8.1
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 8.2
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
   Objective 8.3
   Continue to coordinate with the Oregon City School District and Clackamas Community College to identify partnerships, land needs and programs that would be beneficial to all parties and contribute to the community.

9. Have a **unique sense of place** created by the mix of uses, human scale design, and commitment to sustainability.

   Objective 9.1
   Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.
   Objective 9.2
   Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.
   Objective 9.3
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 9.4
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Objective 9.5

Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Objective 9.6

Allow the integration of housing and employment uses where practicable.

Objective 9.7

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Objective 9.8

Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

Objective 9.9

Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

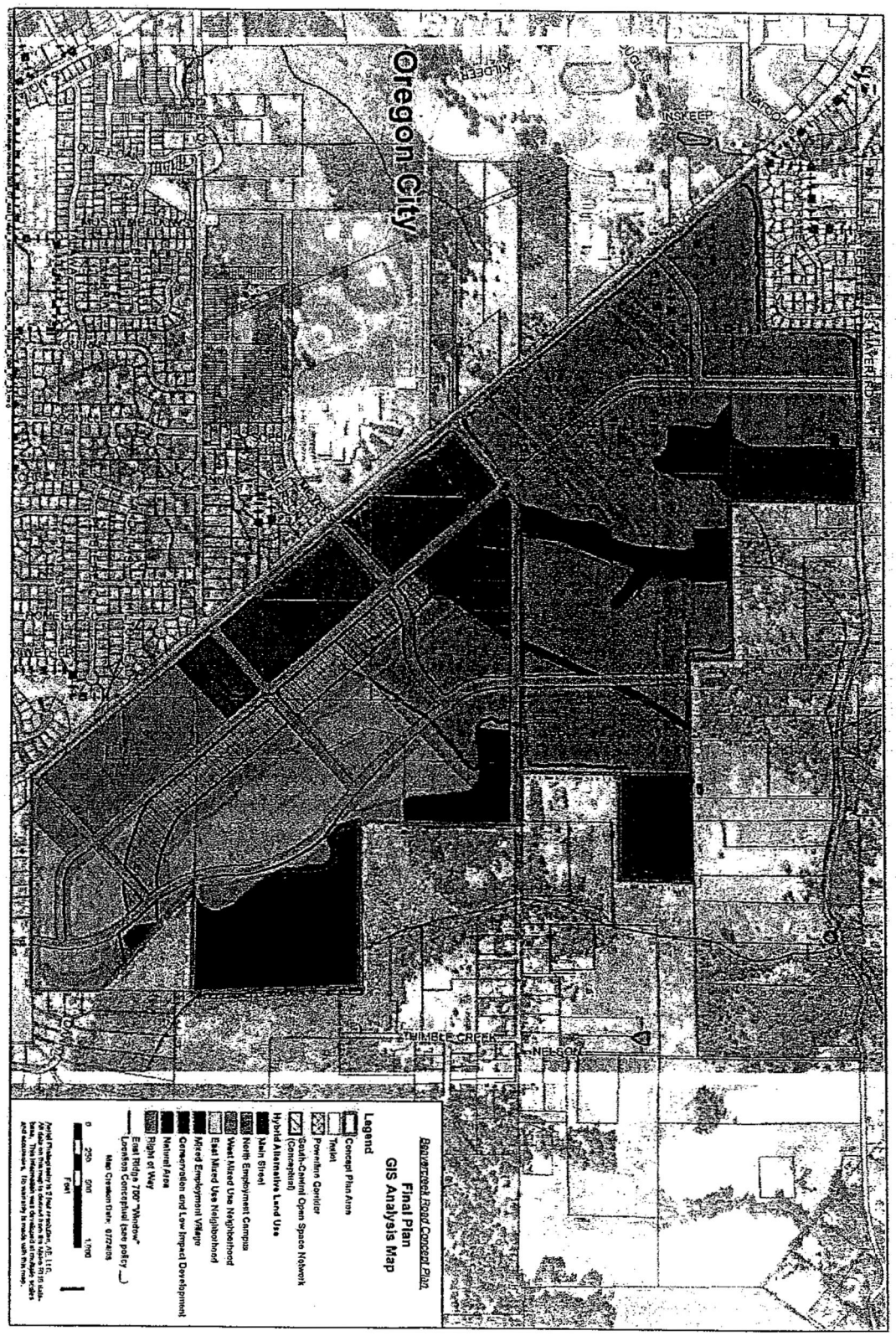
10. Ecological Health – Manage water resources on site to **eliminate pollution to watersheds** and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

Objective 10.1

Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

BEAVERCREEK ROAD
CONCEPT PLAN
Alternative A
otak
Oregon City
Oregon City High School
Clackamas Community College
High-Tech Campus/Tech-Flex
Open Space
Future Elementary School

BEAVERCREEK ROAD
CONCEPT PLAN
Alternative D
otak
Oregon City
Oregon City High School
Clackamas Community College
High-Tech Campus/Tech-Flex
Ridge Trail and Road
Future Elementary School



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Table 2
Beavercreek Concept Plan Job & Housing Density Assumptions
Revised - 7/10/07

Land Use Category	Hybrid Gross Acres	Hybrid Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
North Employment Campus (adjusted gross acreage)	149	127	0.3	450	3,678		
Mixed Employment Village	26	21	0.44	350	1,139		
Main Street****	10	8	0.44	350	219	25	100
West Mixed Use Neighborhood	22	18			15	22	387
East Mixed Use Neighborhood	77	62			21	8.7	536
Total # of Jobs					5,073		
Total # of Housing Units							1,023
Total Acres of Developed Land++	284	235					

Land Use Category	Plan A Gross Acres	Plan A Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
Employment (adjusted gross acreage)	139	118	0.3	450	3,431		
Mixed Employment	24	20	0.44	350	1,117		
Mixed Use****	10	9	0.44	350	233	25	106
Medium/High Density Residential	50	43			43	25	1,063
Low/Medium Density Residential	53	45			18	10	451
Total # of Jobs					4,841		
Total # of Housing Units							1,619
Total Acres of Developed Land++	276	235					

Land Use Category	Plan D Gross Acres	Plan D Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
Employment (adjusted gross acreage)	84	71	0.3	450	2,073		
Mixed Employment	25	21	0.44	350	1,164		
Mixed Use****	29	25	0.44	350	675	25	308
Medium/High Density Residential	9	8			8	25	191
Low/Medium Density Residential	99	84			34	10	842
Total # of Jobs					3,953		
Total # of Housing Units							1,341
Total Acres of Developed Land+++	246	209					

*For Hybrid - Net acres equals gross acres minus 15% for local roads and easements in Employment, Mixed Employment, Mixed Use, and residential areas assume 20% for local roads and easements

** Based on Metro 2002-2022 Urban Growth Report: An Employment Land Need Analysis. Includes total on site employment (full and part time). Mixed Employment FAR and job density reflects a mix of office, tech/flex, and ground floor retail.

***Number of Jobs in Employment, Mixed Employment, Mixed Use calculated by multiplying total acres by the FAR; Converting to square feet; and dividing by number of jobs/square foot. Jobs in residential areas (Work at Home Jobs) estimated at 4% (potential could be as high as 15%).

**** Mixed Use land use assumes 50% of acreage devoted to commercial uses and the remaining 50% devoted to vertical mixed use.

+Number of units calculated by multiplying total net acres of residential land use by average units per acre

++Includes 50% of useable power line corridor (26 acres total) as part of developed land (included in Employment land area)

+++Does not include powerline corridor acreage as part of developed land

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Appendix IV

Table 3
Land Use Metrics/Assumptions - HYBRID
Revised - 7/10/07

Land Use Category (acres)	Hybrid	Alt. A	Alt. D
North Employment Campus (adjusted gross acreage)*	149	139	84
Mixed Employment Village	26	24	25
Main Street	10	10	29
West Mixed Use Neighborhood	22	50	9
East Mixed Use Neighborhood	77	53	99
Total Acres of "built" land use	**284**	**276**	**246**
Other Land Uses (not "built")			
Parks/Open Space/Natural Areas (Total)**	113	132	166
Major ROW+	56	36	30
Existing Uses (unbuildable)	0	7	7
Total Project Area Gross Acres	**453**	**~450**	**~450**

***Adjusted gross acreage** is the sum of 50% of the employment land use shown under the powerline easement plus all other unconstrained employment land use areas. Calculations shown below:

Land Use Category (acres)	Hybrid	Alt. A	Alt. D
Total North Employment Campus	175	166	84
Unconstrained NEC	**123**	**111**	**84**
Employment with powerline overlay	52	55	0
Useable portion of powerline overlay (50%)	**26**	**28**	**na**
North Employment Campus (adjusted gross acreage)*	**149**	**139**	**84**

** Open Space/Natural areas is the sum of all "unbuildable lands" as shown on the *Buildable Lands Map* plus two areas under the powerlines. Calculations shown below.

Open Space/Natural Areas Break-Out	Hybrid	Alt. A	Alt. D
Open Space -Gas Overlay	3	4	4
Open Space - Unbuildable Powerlines***	48	49	0
Environmental Resources/*Buildable Lands Map*	61	61	61
Parks	na	12	na
Other Open Space Areas	18	6	101
Open Space/Natural Areas (Total)	**130**	**132**	**166**

***For Hybrid** - Unbuildable Powerlines area includes 12 acres on east edge of site under powerlines plus 50% of employment area under powerlines (~26 acres) and the PGE parcel (10 acres). **For Alt. A** - Unbuildable Powerlines area includes 12 acres on east edge of site under powerlines and 10 acres of the PGE Parcel and 50% of powerline area (27 acres).

+Major ROW are approximate location & acreage (may be shown as crossing natural resource areas. Actual location and size of ROW will be addressed during development review/master planning). Includes 2 acre adjustment for GIS polygon alignment.

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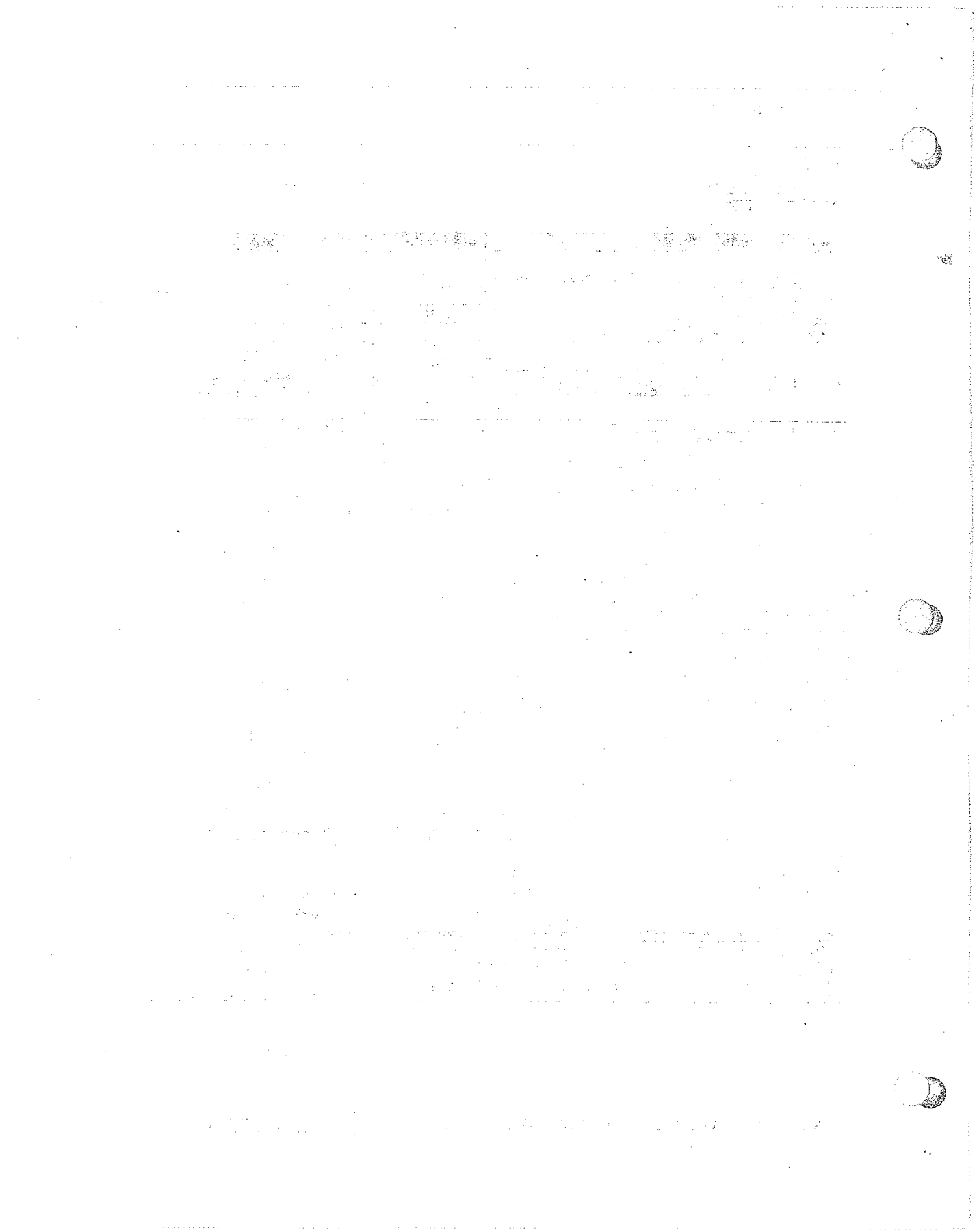

LAND USE APPLICATION

For

ZONE CHANGE AND PLAN AMENDMENT

For

19896 Beavercreek Road, Oregon City

T3S, R2E, Sec. 10, Tax Lot 800

Property Owner:

Maywood,LLC

7128 SW Gonzaga Street

Portland, Oregon 97223

Prepared by:

Theta,llc

PO Box 1345

Lake Oswego, Oregon 97035

Office of the Secretary of State

BILL BRADBURY
Secretary of State

Archives Division
MARY BETH HERKERT
Director

800 Summer St. NE
Salem, Oregon 97310
(503) 373-0701

Facsimile (503) 373-0953

March 27, 2008

Metro
Linda Martin
600 NE Grand Ave
Portland, Oregon 97232-2736

Dear Ms. Martin:

Please be advised that we have received and filed, as of March 27 2008, the following records annexing territory to the following:

Ordinance/Resolution Number(s)	Our File Number
07-1020 (Oregon City)	AN 2008-0067
07-1021 (Oregon City)	AN 2008-0068

For your records please verify the effective date through the application of ORS 199.519.

Our assigned file number(s) are included in the above information.

Sincerely,

Linda Bjornstad
Official Public Documents

cc: County Clerk(s)
Department of Revenue
ODOT
Population Research Center

Phil Gentemann

From: Raymond Valone [valoner@metro.dst.or.us]
Sent: Tuesday, May 01, 2007 8:13 AM
To: phil@centurionhomes.net
Subject: UGB Map

Attachments: taxlot_in_ugb.pdf

taxlot_in_ugb.pdf
(275 KB)

Phil,
The attached map from our Data Resource Center shows the original UGB area along Beavercreek Road, including TL 800 that asked me about, as being within the UGB since 1979. I hope this helps.

Ray Valone
Principal Planner
Metro
600 NE Grand Avenue
Portland, Oregon 97232
Ph 503-797-1808
Fx 503-797-1930
E-mail: valoner@metro.dst.or.us
Web: http://www.metro-region.org/

NOT SUBJECT TO TITLE 11

NO CONCEPT PLAN REQUIREMENT

32E10C 00580
32E10C 00500
32E10C 00802
32E09D 01300
32E10C 00800
32E10C 00801
Meyers Rd
Beavercreek Rd
32E09DD00100
32E09DD00200
32E09DD00300
32E09DD03200
32E09DD00400
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R L S
REGIONAL LAND INFO TION SYSTEM
Taxlot 3S2E10C00800
Original 1979 UGB
The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.
1 inch equals 189 feet
Feet
0 50 100 200 300
Clackamas
Location Map
METRO
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org
N
Project Date: Apr 30, 2007 Plot date: Apr 30, 2007 J:\hal\proj\mp\taxlot_in_ugb.mxd
Please recycle with mixed paper

Phil Gentemann

From: Dan Drentlaw [ddrentlaw@ci.oregon-city.or.us]
Sent: Thursday, October 22, 2009 12:32 PM
To: phil@centurionhomes.net
Cc: Bill Kabeiseman; Tony Konkol
Subject: RE: 19896 S Beavercreek Road.doc

Phil –

While the property in question is annexed to Oregon City, it is designated Future Urban on our Comprehensive Plan. In order to develop the property one of the major steps would be to apply for a change to the comprehensive plan designation and apply for city zoning. This is a type 4 process and would require public hearings before the Planning Commission and City Commission. One of the major review criteria would be consistency with the Compressive plan and the Beavercreek Rd. concept plan. While we cannot guarantee the outcome of this process, it appears that rezoning to MUE or MUC would be consistent with the Beavercreek Rd. concept plan. These hearings could be combined to save processing time and a decision would have to be issued with 120 days from the submittal of a complete application. If you would like details regarding the application requirements, please contact Tony Konkol.

From: Phil Gentemann [mailto:phil@centurionhomespdx.com]
Sent: Tuesday, October 20, 2009 1:50 PM
To: Dan Drentlaw
Cc: KleinmanJL@aol.com
Subject: 19896 S Beavercreek Road.doc

Dan attached is a summary outline reference zoning our property at 19896 S Beavercreek Road. I could also send you the information i
handed out at the council meeting last week if you need it or think it would be helpful

No virus found in this incoming message.
Checked by AVG - www.avg.com
Version: 8.5.423 / Virus Database: 270.14.24/2449 - Release Date: 10/20/09 18:42:00

Clackamas County Official Records
Sherry Hall, County Clerk
2008-022108
01200414200800221080060066
$56.00
03/28/2008 08:44:20 AM
D-ANXCON Cnt=1 Stn=9 DIANNAW
$30.00 $16.00 $10.00

AFTER RECORDING RETURN TO:

City Recorder
City of Oregon City
P. O. Box 3040
Oregon City, Oregon 97045-0304

Map No.: 3-2E-10C
Tax Lot No.: 800
Planning No.: AN 07-02

Grantor(s): MARYLWOOD LLC

ANNEXATION AGREEMENT

This Annexation Agreement ("Agreement") is entered into by and between MARYLWOOD LLC ("Petitioner") and the CITY OF OREGON CITY ("City"), an Oregon municipal corporation on this 19 day of December 2007.

RECITALS

WHEREAS, Petitioner is the record owner of TL 800 (Sec. 10, Twp. 3S, Range 2E, W.M.), approximately 9.7 acres in size, with a street address of 19896 Beavercreek Road, Oregon City, OR 97045 (the "Property"), located in unincorporated Clackamas County and within the City's Urban Growth Boundary (UGB); and described as follows, to wit:
See attached EXHIBIT "A" Legal description and
attached EXHIBIT "B" Sketch for Legal Description; and

WHEREAS, Petitioner has submitted an application to City to annex the Property into the City's corporate limits (City File No. AN 07-02), and the City has accepted and is considering that application; and

WHEREAS, one factor in the City's consideration of Planning File No. AN 07-02 annexation application is whether the City has the capacity or financial resources to provide necessary public services to the Property, most notably law enforcement; and

WHEREAS, City's ability to provide adequate levels of law enforcement to serve the Property is largely dependant upon the availability of funding to pay the cost of these urban services; and

WHEREAS Petitioner recognizes that it is incumbent upon new development to pay the cost of providing urban services and facilities, at sufficient levels, to serve new development, and both parties desire to identify a means by which Petitioner funds the cost of providing law enforcement to the Property if the City consents to annex the Property.

NOW THEREFORE, based on the foregoing Recitals, the mutual covenants provided for in this Agreement, and for valuable consideration, receipt of which is hereby acknowledged, the parties agree as follows:

1. The City agrees to review, process and consider Planning File No. AN 07-02 annexation application in the normal course and apply the customary criteria in that process. Execution of this Agreement by the City shall not be construed in any way to be a promise or guarantee that the annexation, or any other land use approval, will be granted by the City.

2. Petitioner agrees that, in the event that the City gives final approval to annex the Property, Petitioner will pay to City amount specified by attached police funding fee schedule A permitted by City to be constructed on the Property to be used for the provision of law enforcement services. The amount provided for in this paragraph shall be due and payable by Petitioner to the City at the time City issues a building permit for each new dwelling on the Property.

3. The City agrees to use any amount paid to it by Petitioner for law enforcement services as provided in Paragraph 2. The funds provided pursuant to this Agreement are intended as a supplement to the City's current funding of its law enforcement and are not intended to serve as replacement for those funds.

4. The parties agree that this Agreement is not, is not intended to be and shall not be construed as, a "development agreement" under ORS 94.504 to 94.528. In the event any form of legal challenge is brought by any entity not a party to this Agreement challenging the Agreement, the City is under no obligation whatsoever to defend the Agreement.

5. Term, extension and modification: If the Property is not annexed to the City by June 30, 2008, this Agreement shall expire on July 1, 2008 and be of no further force or effect. If the Property is annexed to the City by June 30, 2008, the Agreement shall be valid, binding and enforceable until July 1, 2018, after which it shall expire and be of no further force or effect. This Agreement may be extended or modified at any time prior to expiration upon the mutual written consent of the parties.

6. Agreement runs with the land. The rights and obligations set forth in this Agreement shall be recorded with the title to the Property, and, except as provided in Paragraph 5, shall run with the land and be binding upon the parties to this Agreement, their heirs, successors and assigns.

7. No third party beneficiaries. This Agreement is strictly and solely between the parties signed below, and it shall not create any obligation on the part of either party to perform or pay anything to or on behalf of anyone not a party to this Agreement. This Agreement does not create any rights in favor of or for any person or entity that is not a party to this Agreement.

IT IS SO AGREED:

The City of Oregon City:

Alice Norris

Alice Norris
print name

Date: 03-19-08

MARYLWOOD LLC:

Philip M Gentemann Member
Print Name:

Date: December 19, 2007

Philip M. Gentemann
Print Name:

Date: December 19, 2007

CITY OF OREGON CITY

////

////

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19th day of March 2008 by Alice Norris, the Mayor of Oregon City, who swore or affirmed that he/she was authorized to execute the foregoing Annexation Agreement on behalf of the City of Oregon City.

OFFICIAL SEAL
NANCY S. IDE
NOTARY PUBLIC-OREGON
COMMISSION NO. 400033
MY COMMISSION EXPIRES DEC. 1, 2009

Nancy S. Ide
Notary Public for Oregon,
My Commission Expires 12-01-09

MARYLWOOD LLC

OFFICIAL SEAL
BILL MC CORKLE
NOTARY PUBLIC-OREGON
COMMISSION NO. A405812
MY COMMISSION EXPIRES JULY 6, 2010

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19 day of December 2007 by Philip M. Gentemann.

Notary Public for Oregon,
My Commission Expires 7-6-2010

EXHIBIT "A"

LEGAL DESCRIPTION

A tract of land located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89°36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40°37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89°35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, containing 27.00 acres, more or less, and being a part of the tract of land described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

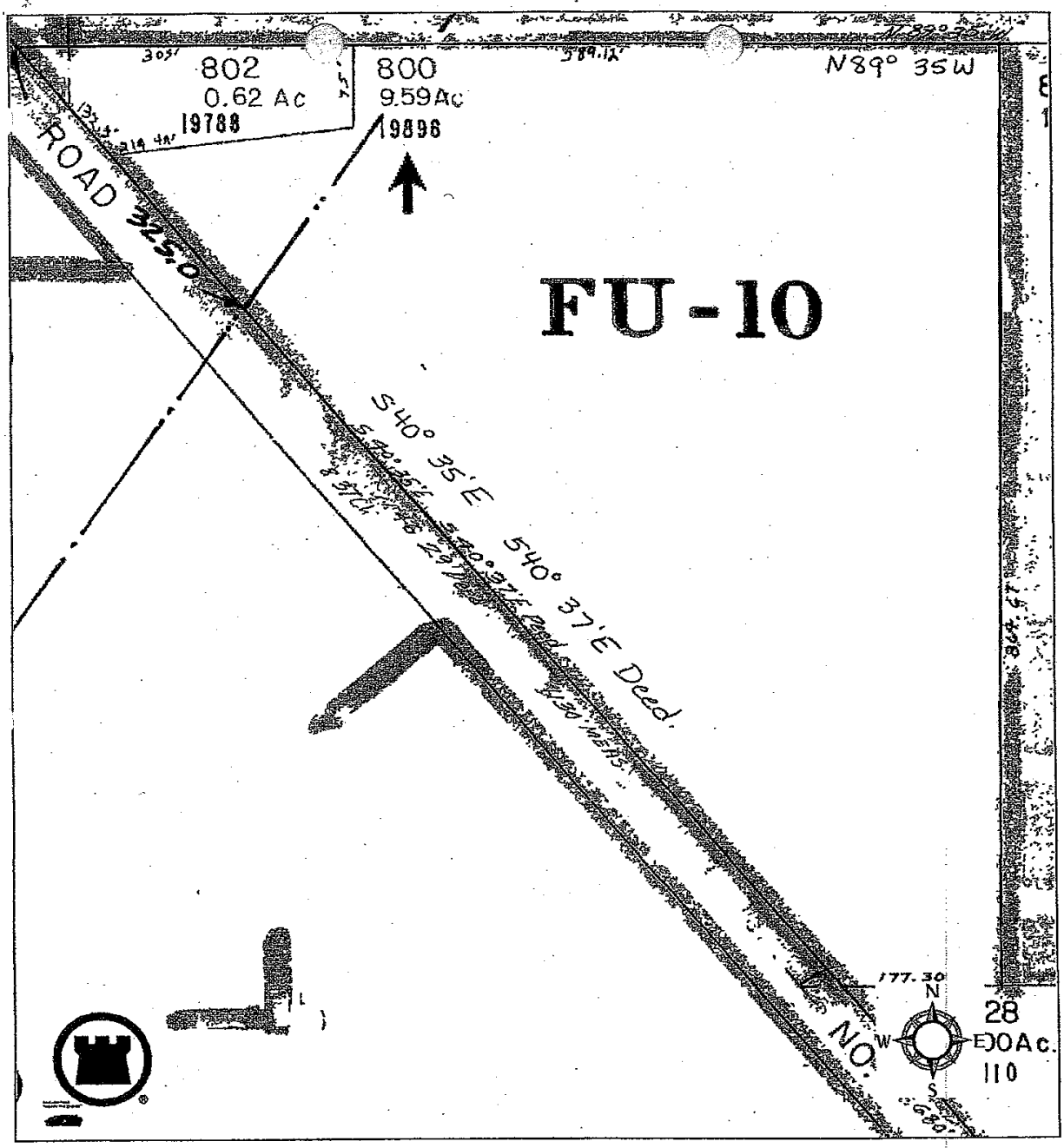
EXCEPTING THEREFROM a tract of land in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract of land conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89°35' West 3.76 feet; thence South 89°35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83°52'30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40°35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract of land located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0°0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89°35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

4



CHICAGO TITLE

"This plat is for your aid in locating your land with reference to streets and other parcels.
While this plat is believed to be correct, the company assumes no liability for any loss occurring by reason of reliance thereon."

Map No. 32E10C 00800

CHICAGO TITLE INSURANCE COMPANY
10135 S.E. SUNNYSIDE ROAD Suite 200
CLACKAMAS, OREGON 97015

Exhibit "B"
5

Schedule A
Police Funding Fees
AN 07-0002

LAND USE	SERVICE RATING	FEE
Industrial / Employment	Low	$0.10 / sq. ft.
Commercial / Office	Low	$0.10 / sq. ft.
Urgent Care Clinics, Senior Living Facilities, Apartment Buildings, Hotels	High	$0.20 / sq. ft.
Residential	High	$3,500 / unit

(6)

APENDIX

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

June 21, 2010 Project #: 10608.0

Pete Walter
City of Oregon City
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RE: Beavercreek Road/Meyers Road Rezone Transportation Planning Rule Analysis – Oregon City, Oregon

Dear Pete,

This letter summarizes the findings of a professional transportation engineering analysis of a proposed property rezone located at 19896 Beavercreek Road in Oregon City, Oregon[1]. Based on the analysis presented herein, the proposed rezone of the 9.73-acre study site from *Future Urban* zoning to City *Mixed-Use Corridor* (MUC-1) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements. The remainder of this memorandum provides further documentation of the study methodology, findings, and recommendations.

INTRODUCTION

This letter was prepared to address requirements identified within Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, TPR), which contains the applicable criteria for a zone change analysis. The intent of the TPR is to ensure the transportation system can accommodate the change of uses to the adopted system plan and that any resultant significant effects can be mitigated.

The land included in the rezone is located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road. The property is included within the *Beavercreek Road Concept Plan* area as a future mixed-use center. The overall *Beavercreek Road Concept Plan* is currently subject to remand by the Department of Land Conservation and Development (DLCD) and is not considered an approved plan. The location of the property is generally shown in Figure 1 while Figure 2 illustrates the property location in the context of the Beavercreek Road Concept Plan. No specific development plan or site entitlements are proposed in conjunction with this zone change.

Note that while the overall *Beavercreek Road Concept Plan* is subject to the remand due to non-transportation related issues, the horizon period transportation system development assumptions

[1] Property also identified as T3S-R2E-10C, tax lot 800

and modeling efforts completed as part of the initial Concept Plan remain valid. As discussed herein, the Concept Plan transportation assumptions were developed and approved through a collaboration effort by the City, County, ODOT, and METRO, and as such are consistent with stakeholder direction. Therefore, volume growth assumptions and travel patterns have been retained from the original study.

PROJECT LITERATURE REVIEW

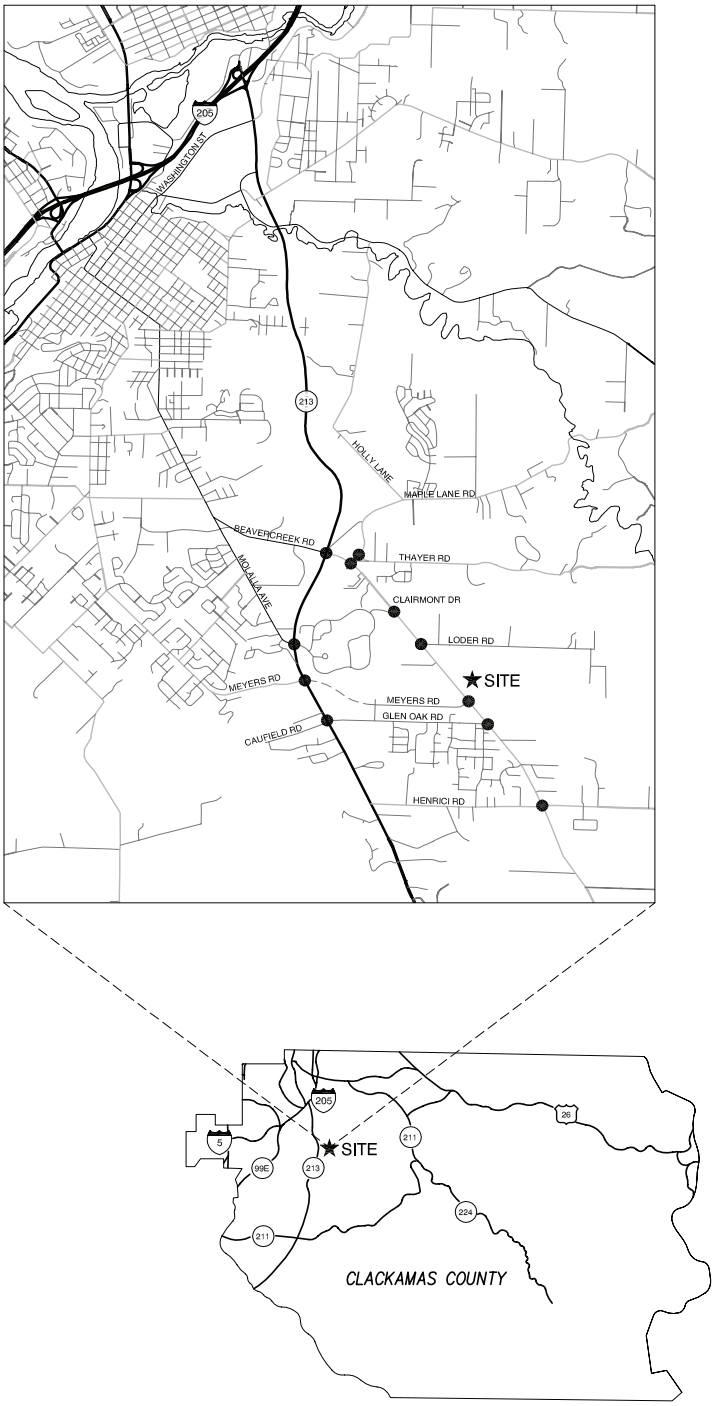
The *City of Oregon City Transportation System Plan* (TSP, Reference 1) and its subsequent amendments were reviewed to identify potential plan considerations affecting the subject property and its supporting transportation system. In addition, due to the history of this area, unadopted but proposed TSP revisions were reviewed to ensure that the proposed rezone project will continue to support the City, County, and ODOT planning efforts should the pending DLCD remand conditions be satisfied.

The proposed rezone for this parcel was previously contemplated and locally approved as part of the overall *Beavercreek Road Concept Plan* (Reference 2), which was completed in 2008. This master plan effort encompassed a 453-acre site within the Oregon City urban growth boundary that had retained its previous Clackamas County *Exclusive Farm Use* (EFU) zoning. Plans for the neighborhood include a diverse mix of retail, residential, and employment uses that would be connected with open space, trails, and green streets. The intent of the plan is to link Clackamas Community College, Oregon City High School, and the adjacent neighborhoods.

Subsequent to adoption by the City, the overall *Beavercreek Road Concept Plan* was remanded by DLCD for non-transportation related reasons, preventing plan adoption into the City's TSP and also preventing plans to legislatively rezone affected properties from their current County designations.

The subject parcel (refer to Figure 2), was identified for MUC zoning within the Concept Plan and was included under the Mixed Employment Village designation. As part of the Concept Plan, it was assumed that the overall Mixed Employment Village would contain a Floor Area Ratio (FAR) of 0.44 based on the net acres, which was identified as a reduction from gross acres of 20 percent to account for easements and roadways[2].

[2] It was noted that of the 26 acres identified as part of the overall Mixed Employment Village, the subject 9.73-acre parcel contains both the Meyers Road extension (identified as a *Collector* Roadway) and the natural gas easement, encompassing a higher proportion of the unbuildable area within the *Mixed Employment Village* than that averaged over the full 26 acres.



LEGEND

● - STUDY INTERSECTIONS

SITE VICINITY MAP
OREGON CITY, OREGON

FIGURE 1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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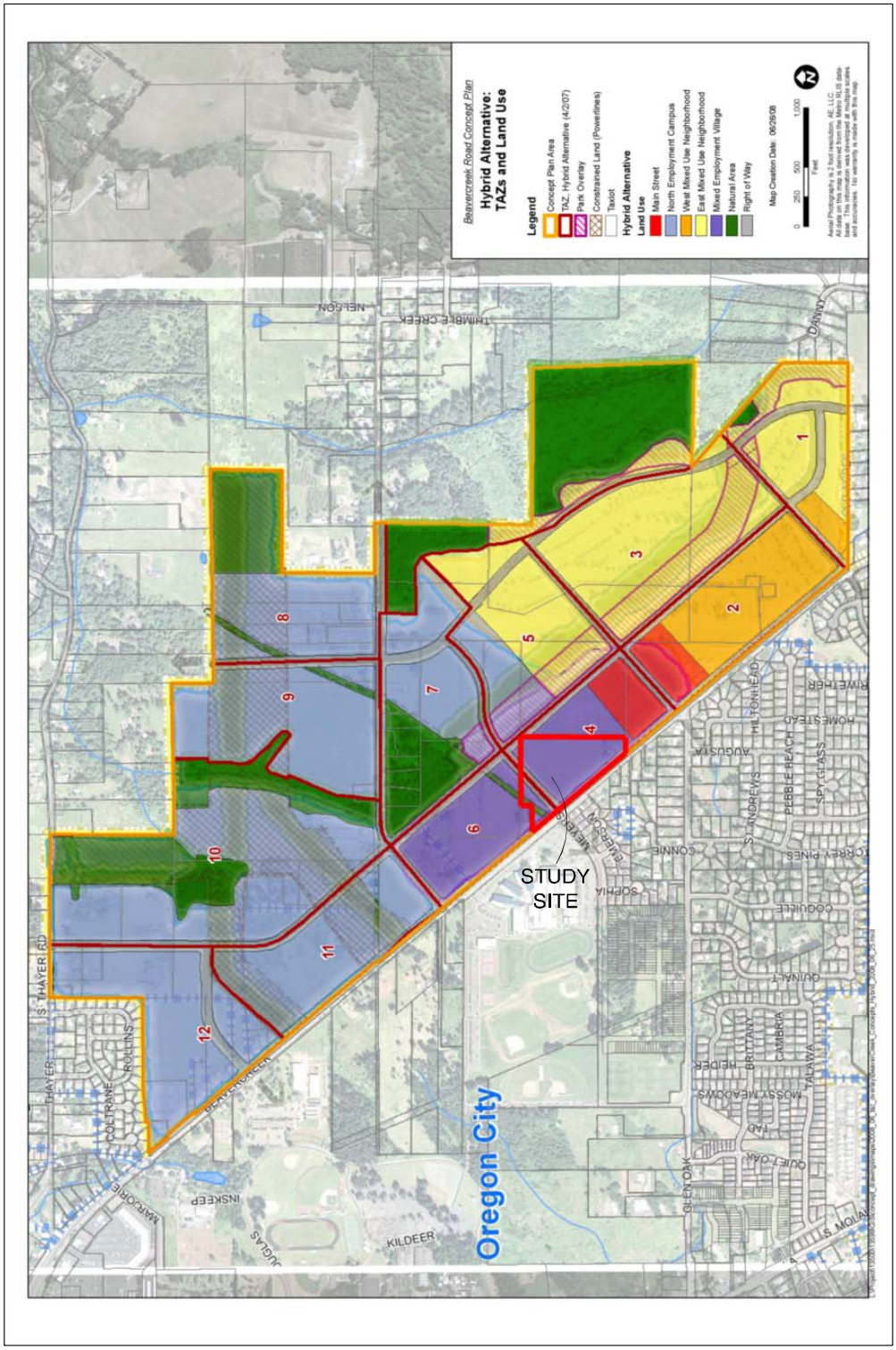

BEAVERCREEK CONCEPT PLAN AND PARCEL LOCATION
OREGON CITY, OREGON

FIGURE 2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 3:08pm - mbell Layout Tab: Fig02

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Several other land use and transportation studies of the Oregon City area have been prepared that also serve as resources to this proposed plan amendment. Among them are the *Park Place Concept Plan* (Reference 3), the *Highway 213 Urban Corridor Design Study* (Reference 4), and the *OR 213: I-205 - Redland Rd O'Xing* (Reference 5) design study. Of these studies, the *Park Place Concept Plan* is not adopted and the 2020 horizon year of the adopted *Oregon City Transportation System Plan,* while applicable to City facilities, does not meet the required 15-year minimum planning horizon for ODOT facilities. The *OR 213: I-205 - Redland Rd O'Xing* contains the most recent, up-to-date, and endorsed set of traffic volume forecasts that were approved by ODOT, Metro, Clackamas County, and Oregon City for the OR 213 segment between I-205 and Redland Road; however, its study boundaries do not extend south of Redland Road.

Project scoping discussions with City and ODOT staff led to the agreement that the horizon analysis presented in this technical memorandum consider conditions in year 2027, consistent with the *Beavercreek Road Concept Plan*. The 2027 future conditions provide the longest planning period of all of the applicable planning efforts in the study area, and will continue to be consistent with previous planning efforts should the *Beavercreek Road Concept Plan* remand be addressed.

EXISTING TRANSPORTATION INFRASTRUCTURE

The existing transportation infrastructure assessment is provided herein to assist the City with the planning and prioritization of maintenance and infrastructure improvements within the study area. The existing conditions analysis is intended to identify current multi-modal connectivity and provisions affecting the study area roadways and infrastructure.

Roadway Facilities

As illustrated in Figure 2, Beavercreek Road borders the site to the west, and the future eastern extension of Meyers Road will bisect the site. Because a site plan application is not available as part of the zone change application, site access locations and connectivity needs are not known.

Oregon City High School is located to the west on the opposite side of Beavercreek Road, and developed residential neighborhoods are located south of the school. Rural land uses currently exist east of the study site, along with wetland and sensitive lands associated with the Thimble Creek Tributary. Table 1 summarizes the primary roadways within the study area.

Table 1
Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification	Number of Lanes	Posted Speed (miles per hour)	Sidewalks	Bicycle Lanes	On-Street Parking
Oregon 213	District Highway/ Expressway	3-5 Lanes	45	Partial[1]	Yes	No
Beavercreek Road	Major Arterial	2-5 Lanes	35-45 [2]	Partial[1]	Partial	No
Molalla Avenue	Major Arterial	3-Lanes	35	Yes	Yes	No
Meyers Road	Collector	3-Lanes	30	Yes	Yes	Yes
Henrici Road	Not classified	2-Lanes	40	No	No	No
Glen Oak Road	Collector	2-Lanes	35	Partial[1]	No	No
Loder Road	Not classified	2-Lanes	25	No	No	No

[1] Roadway infrastructure generally exists where frontage improvements have been provided.
[2] Beavercreek Road is posted with a 35 mph speed limit between OR 213 and Clairmont Drive and transitions to 45 mph south of Clairmont Drive. A 20 mph school zone is posted along the roadway near the Oregon City High School.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are currently provided within the northern portion of the study area where frontage improvements have been completed. There are missing sidewalk and bicycle lane segments along many of the surrounding roadways. Plans for the study area roadways anticipate completion of sidewalk segments as part of private development and roadway enhancement projects, as well as provision of bicycle lanes in conjunction with roadway upgrades to serve the anticipated urban development.

Pedestrian and bicycle facilities are generally not available in the southern portion of the study area. Loder Road and Henrici Road are within the City's Urban Growth Boundary, but at the time of the City's adopted TSP were still under Clackamas County jurisdiction. Accordingly, these facilities are more rural in character and generally allow higher travel speeds.

Within the immediate site vicinity, sidewalks and bicycle lanes are provided on Meyers Road west of Beavercreek Road and along the Oregon City High School site frontage. No sidewalks are provided along the study site frontage or the properties to the north and south of it, though a northbound bicycle lane is provided along Beavercreek Road.

Transit Facilities

No fixed route transit service is currently provided along Beavercreek Road to the site. The nearest transit service is located at Clackamas Community College (CCC) to the north and west of the site. TriMet provides three transit routes to the college (Reference 6). These routes are Route 32: *Oatfield*; Route 33: *McLoughlin*; and, Route 99: *McLoughlin Express*, all of which begin or end their routes at the campus. Each transit line provides service between CCC and downtown Portland, and includes scheduled stops at the Oregon City Transit Center and Milwaukie Transit Center.

APPLICABLE ROADWAY PERFORMANCE STANDARDS

Intersection performance thresholds vary throughout the study area based on the roadway jurisdiction. Oregon City performance requirements are included within the City's TSP, and identify that a Level of Service (LOS) "D" or higher should be maintained at all signalized intersections along with a volume-to-capacity (V/C) ratio less than 1.0, and Level of Service "E" or better be maintained at unsignalized intersections[3]. ODOT mobility standards included within the *Oregon Highway Plan* (Reference 7) require a volume-to-capacity ratio of less than 0.99 along OR 213 during the 30th highest design hour.

Table 2 presents a summary of the study area intersections, roadway jurisdiction, and relevant performance standards.

Table 2 Summary of Intersection Performance Standards

Intersection	Roadway Jurisdiction	Traffic Control	Performance Standard
OR 213/ Beavercreek Road	ODOT	Signalized	V/C < 0.99
OR 213/ Molalla Avenue	ODOT	Signalized	V/C < 0.99
OR 213/ Meyers Road	ODOT	Signalized	V/C < 0.99
OR 213/ Glen Oak Road	ODOT	Signalized	V/C < 0.99
Thayer Road/ Maple Lane Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Maplelane Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Clairmont Drive	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Loder Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Meyers Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Glen Oak Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Henrici Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0

V/C: Volume-to-Capacity Ratio
LOS: level of service

[3] Oregon City standards allow Level of Service "E" or better for the poorest operating approach at unsignalized intersections if no movement serving more than 20 peak hour vehicles is operating at Level of Service "F."

TRANSPORTATION PLANNING RULE COMPLIANCE

The applicable criteria for zone change analyses are found within Oregon Administrative Rule (OAR) 660-12-0060, also known as the Transportation Planning Rule (TPR, Reference 8). The TPR requires that any changes to the adopted and recognized Transportation System Plan show consistency and compliance with the stated goals of the plan, the development and regular updates of which are a mandated requirement for cities. The overall purpose of Division 12 (Transportation Planning) is to coordinate transportation planning and land use planning to serve statewide, regional, and local needs; provide transportation mode choices; provide safe and convenient multi-modal travel; facilitate freight movement; protect facilities for their planned function; accommodate construction of planned facilities; ensure coordination between service providers; and ensure changes to comprehensive plans are supported by adequately planned transportation facilities.

As previously discussed within the Literature Review section of this memorandum, a review of various planning documents was conducted to ensure consistency with adopted plans and planning efforts pending adoption. Based on this review and discussions with jurisdiction staff, this transportation assessment was prepared to review year 2027 transportation system conditions throughout the study area, consistent with the *Beavercreek Road Concept Plan* (Reference 2).

Reasonably Likely Transportation Improvements

TPR analyses allow the inclusion of planned improvements in the horizon analysis period for which a funding mechanism has been identified. The funding mechanism could be an established local Capital Improvement Project, local projects contained within a City's Systems Development Charge (SDC) list, or funded ODOT Statewide Transportation Improvement Program (STIP) projects.

ODOT Statewide Transportation Improvement Program

Review of the approved ODOT STIP (2008 through 2011, as amended May 21, 2010) identified a project along OR 213 between the I-205 ramps and milepost 0.29 to construct a jughandle intersection at Washington Street (STIP #16985, Estimated Cost: $22,000,000).

Oregon City Transportation System Plan

Several projects along the OR 213 corridor were identified as part of the 2001 TSP within Table 5-5. These were identified as near-term (1-5 years), long-term (6-20 years), and include prioritization, as shown below in Table 3.

Table 3 Oregon City Planned Improvements

Project #	Project Description	Cost and Priority
NEAR-TERM IMPROVEMENTS (1-5 YEARS)		
Intersection Capacity and Operational Improvements		
R-4	OR 213/Beavercreek Road: widening and restriping to provide dual left-turn lanes and two through lanes on all intersection approaches, provision of an exclusive westbound right-turn lane, signal modification, redesign pedestrian and bicycle crossings. *Portions of this project have been constructed including the exclusive westbound right-turn lane, some modifications to the traffic signal hardware, dual left-turns on all but the northbound approach, and pedestrian and bicycle improvements on all but the north leg.*	$5,450,000, Priority #1
Upgrade Street Segments to City Street Standards		
R-12	Beavercreek Road: Clackamas Community College to Glen Oak Road – provide curb, gutter, and sidewalk along both sides of the roadway.	$1,000,000, Priority #3
R-17	Glen Oak Road: Hwy 213 to Beavercreek Road – provide curb, gutter, and sidewalk along both sides	$1,200,000, Priority #3
LONG TERM IMPROVEMENTS (6-20 YEARS)		
Roadway Capacity and Operational Improvements		
R-38	Molalla Avenue to Henrici Road (Project R-38): Provide dual northbound and southbound left-turn lanes at the OR 213/Molalla Avenue intersection; signal modification at OR 213/Molalla Avenue, widen to provide an additional travel lane in each direction from Molalla Avenue to Canyon Ridge Drive; widen to provide standard 3-lane cross-section from Canyon Ridge Drive to Henrici Road.	$2,610,000, Priority #3
R-38	OR 213/Molalla Avenue: Provision of dual northbound and southbound left-turn lanes, signal modification.	$835,000, Priority #3
R-55/ R-38	OR 213/Glen Oak-Caufield Road: Realign intersection offset, signalization, provision of exclusive EB and WB LT lanes.	$550,000, Priority #3
R-56/ R-38	OR 213/Henrici Road: Signalization, provision of exclusive WB LT and RT lanes.	$300,000, Priority #3
R-69	Beavercreek Road/Glen Oak Road: Signalization, provision of an exclusive NB RT lane.	$349,000, Priority #3
R-105	OR 213/Beavercreek Road (R-105): Single point diamond grade-separated interchange improvement as described within the OR 213 corridor study.	$20,000,000, Priority "B".
New Roadways based on Growth, Development, Enhanced Connectivity, and Operations		
R-98	Meyers Road from OR 213 to Beavercreek Road (R-98): East-West extension of Meyers Road – Collector	$N/A, Priority "B"

While a range of local improvement needs have been previously identified throughout the study area as part of the City's 2001 TSP (and subsequent plans), funding of the majority of these improvements is not considered "Reasonably Likely" as these projects are located along ODOT facilities and not included on the current STIP list. Based on discussions with City and ODOT Region 1 staff, no other improvements to OR 213 were assumed to be reasonably funded for the purposes of this rezone analysis.

Among the City-maintained study intersections along Beavercreek Road, the long-term analysis assumes signalization of the Glen Oak Road/Beavercreek Road intersection. Figure 3 illustrates the assumed lane configurations and traffic control devices at the study intersections.

ASSUMED 2027 LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
WITHOUT MEYERS ROAD EXTENSION
OREGON CITY, OREGON

FIGURE 3

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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

Existing Zoning Conditions (Future 2027 Horizon Period)

An analysis was conducted for the year 2027 horizon year. The existing zoning assessment was prepared to identify how the study area's transportation system operates in the horizon year with build-out of the subject parcel as currently zoned (without the impact of the proposed rezone). This analysis provides a basis for comparison to transportation conditions with the proposed zone change.

Future forecast traffic volumes for the *OR 213: I-205 - Redland Rd O'Xing (Oregon City)* were based on modeling data provided by METRO. This modeling was completed in 2008 while both concept planning efforts were underway in Oregon City and regional center developments were being considered in the Clackamette Cove area and on the retired Rossman Landfill site. To ensure an accounting of the Beavercreek Road concept planning, the METRO model projections for growth showed significant mixed-use development (well beyond densities allowed within the EFU zoning) within the Transportation Analysis Zones (TAZ) that include the subject property. Accordingly, a portion of the Beavercreek Road Concept Plan, primarily build-out within the TAZs that include the subject property, was assumed and accounted for within the volume projections used in all recent OR 213 analysis for the highway segment between I-205 and Redland Road.

For intersections south of Redland Road, year 2027 volume projections through the *Beavercreek Road Concept Plan* "No-Build" conditions were utilized to provide an accurate assessment of future year 2027 traffic volumes. These forecast volumes were jointly developed with City, ODOT, and METRO staff as part of the previous planning efforts.

The subject property has been annexed into the City of Oregon City and includes a Comprehensive Plan designation of "Future Urban", but with the remand of the *Beavercreek Road Concept Plan,* it was assumed that the current zoning is essentially "capped" based on County provisions. Section 400 of the County's Development Code was obtained to identify the allowable uses within the existing EFU zoning, which indicates that the intent of EFU zoning is to allow low-intensity rural and agricultural uses. Minimum allowable lot sizes within the EFU zoning could allow for only a single residence on the subject parcel. Accordingly, the base scenario for the existing zoning assumes one single family dwelling unit within the overall 9.73-acre parcel.

Intersection Level-of-Service Analysis

Consistent with the *Beavercreek Road Concept Plan*, Figure 4 illustrates the weekday p.m. peak hour traffic volumes inclusive of regional growth and potential site build-out with the existing EFU zoning. These volumes were used to conduct an operational analysis at each of the study intersections to determine the horizon year levels of service.

As shown in Figure 4, intersections along OR 213 between Beavercreek Road and Meyers Road are forecast to exceed ODOT mobility standards in 2027 while all other intersections are shown to operate acceptably. By way of comparison, the *Beavercreek Road Concept Plan* identified these

LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

HORIZON YEAR EXISTING ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 4

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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

same system needs. Attachment "A" contains the horizon period existing zoning intersection operations analysis worksheets.

Proposed Zoning Conditions (Future Horizon Period)

The Mixed Use Corridor with Moderate Density Option (MUC-1) zoning category provides for a medium density mix of commercial, office, and residential uses. The purpose of the MUC zoning is to encourage development along selected sections of transportation corridors within Oregon City such as Beavercreek Road. The MUC-1 designation allows buildings up to three-stories in height and requires a minimum landscape area of 20 percent.

Allowable land uses within the MUC zoning include the following:

- Offices, including finance, insurance, real estate and government;
- Residential units, multi-family;
- Restaurants, eating and drinking establishments without a drive through; and
- Retail trade, including grocery, pharmacy, specialty stores, etc. provided the same business does not exceed 60,000 square-feet.

As shown in Figure 2, the subject property is located entirely within the area designated as Mixed Employment Village by the Beavercreek Road Concept Plan. A Floor Area Ratio (FAR) of 0.44 was identified under the Mixed Employment Village land use category within this plan. The 0.44 FAR was applied to the overall Mixed Employment Village Area lands and does not take into account the geometric constraints, 50-foot utility easements, or the planned Meyers Road extension that will uniquely impact the study site parcel, effectively reducing the amount of buildable space by approximately 22 percent. Applying a 22 percent reduction to the overall parcel area, site development could reasonably accommodate approximately 145,500 square-feet of total building space.

While a wide variety of land uses are available within the MUC-1 zoning, the potential building area was proportioned between office, commercial and residential uses consistent with the ratios shown in the *Beavercreek Road Concept Plan*, resulting in a development scenario that includes approximately 30 condominium units, 20,000 square-feet of retail uses, and 80,000 square-feet of office uses. *City MUC zoning provisions are included in Attachment "B."*

Trip Generation

Trip generation estimates were prepared for both the EFU and MUC zoning scenarios to determine the incremental trip generation potential during the critical weekday evening commute period (one hour between 4:00 and 6:00 p.m.). Trip generation estimates were prepared based on data contained within the Institute of Transportation Engineer's (ITE's) standard reference *Trip Generation, 8th Edition* (Reference 9).

The *Beavercreek Road Concept Plan* used data from ITE's *Trip Generation Handbook, 2nd Edition* (Reference 10), to determine the internal trip potential between the various land uses, which was

identified as three percent of the overall trips. This same methodology was applied to the TPR scenario, resulting in a six percent trip reduction. It should be noted that multi-modal and rerouted trips assumed in the Concept Plan were not included as part of this rezone project as it is unlikely these reductions would be experienced with the development of only a single parcel. Table 4 summarizes the trip generation potential of the two scenarios.

Table 4
Development Scenarios Trip Generation Potential

Land Use	ITE Code	Size	Weekday PM Peak Hour		
			Total	In	Out
Existing EFU Zoning					
Single Family Detached Housing	210	1 Unit	1	1	0
Proposed MUC Zoning					
Shopping Center *Internal Tips (6%)* *Pass-by Trips (34%)*	820	20,000 SF	75 *(4)* *(24)*	37 *(2)* *(12)*	38 *(2)* *(12)*
Office *Internal Tips (6%)*	710	80,000 SF	119 *(7)*	20 *(1)*	99 *(6)*
Condos/Townhomes *Internal Tips (6%)*	230	30 Units	16 *(1)*	11 *(1)*	5 *(0)*
Net New Trips			174	52	122
Trip Difference (Proposed Zoning – Existing Zoning)					
Trip Difference			173	51	122

As shown in Table 4, future development of the 9.73-acre site with MUC-1 zoning could generate 173 more weekday p.m. peak hour trips than build-out with EFU uses.

Trip Distribution and Trip Assignment

The estimated trip distribution pattern of primary site-generated trips associated with the proposed rezone was obtained from the *Beavercreek Road Concept Plan*, as illustrated in Figure 5. This trip distribution pattern was estimated based on a review of select zone analyses produced by the METRO Sunrise model, as well as existing traffic patterns, local knowledge of the area, and professional judgment.

The incremental increase in site trip generation between the EFU zoning trip generation potential and the proposed MUC zoning trips (as shown in Table 4) during the critical weekday p.m. peak hour was assigned to the roadway network based on the trip distribution patterns and routing, as illustrated in Figure 5. Figure 6 includes a summary of the total additional vehicle trips projected at the study intersections assuming the property is rezoned and developed.

NOTE: NEGATIVE VOLUMES REFLECT PASS-BY TRIPS

ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 5

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HORIZON YEAR PROPOSED ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 6

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Intersection Operations Analysis

The weekday p.m. peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection to determine the horizon year levels of service. As shown, all of the study intersections along OR 213 between Beavercreek Road and Glen Oak Road are forecast to continue to exceed ODOT mobility standards in 2027 and all other study intersections are shown to operate acceptably with the additional site trips under the proposed MUC zoning.

Based on direction from ODOT Region 1 staff, the proposed rezone would be determined to significantly impact a study intersection already in failure (defined as having a volume-to-capacity ratio greater than 0.99) if the volume-to-capacity ratio at the intersection increased by more than 0.01. With this threshold in mind, Table 5 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone.

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

As shown in Table 5, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at both the OR 213/Molalla Avenue intersection and the OR 213/Meyers Road intersection. Thus, the proposed rezone was projected to have a significant affect on two of the four ODOT-maintained study intersections. *Attachment "C" contains the horizon period proposed zoning intersection operations analysis worksheets.*

Assessment of Potential Mitigation Measures

One of the anticipated study area capacity improvements is the extension of Meyers Road between OR 213 and its existing terminus to the east at High School Avenue. Clackamas County Community College is committed to dedicating some of the right-of-way needed for this connection in conjunction with future master plan development. A small number of other property owners control the required right-of-way for the future roadway extension and is expected to extend the future roadway as they further develop land along the roadway.

The future year operations analysis was repeated for the existing and proposed zoning conditions assuming the Meyers Road extension is in place. Figure 7 illustrates the assumed lane

configurations for this scenario, which were developed based on direction from ODOT Region 1 staff. Figure 8 illustrates the corresponding traffic conditions at the study intersections assuming the Meyers Road extension. Figure 9 shows the site-generated trip assignment for the proposed MUC zoning with the Meyers Road extension and Figure 10 illustrates the resultant traffic conditions.

Table 6 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone with the Meyers Road extension in place.

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

As shown in Table 6, with the Meyers Road extension in place, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at only the OR 213/Meyers Road intersection. Further, the proposed rezone results in no change to the intersection volume-to-capacity ratios at the OR 213/Molalla Avenue and OR 213/Glen Oak Road intersections with the Meyers Road Extension in place.

To comply with the TPR, the significant effect at the OR 213/Meyers Road intersection could be mitigated through various alternatives, as provided below.

- The TPR allows the mitigation of significant effects through minor transportation improvements. Installation of a separate westbound right-turn lane along Meyers Road at the intersection reduces the volume-to-capacity ratio to 1.08; an improvement over conditions without the rezone trips (1.13).

- Based on the poor long-term performance at OR 213/Meyers Road the City and ODOT could adopt a plan that would enhance the intersection capacity at the time of initial construction. Intersection improvements needed for the intersection to operate acceptably in 2027 likely include widening OR 213 to become a five-lane cross-section, as identified in the City's 2003 TSP and within the Beavercreek Road Concept Plan. Construction of this roadway cross-section is partially in place where frontage improvements have been completed.

Attachment "D" contains the intersection operations analysis worksheets assuming the Meyers Road extension is in place during the horizon period.

Beavercreek Rezone *June 2010*

ASSUMED LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES WITH MEYERS ROAD EXTENSION OREGON CITY, OREGON

FIGURE 7

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LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

HORIZON YEAR EXISTING ZONING CONDITIONS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 8

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ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 9

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LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

HORIZON YEAR PROPOSED ZONING CONDITIONS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 10

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TRANSPORTATION PLANNING RULE COMPLIANCE

OAR Section 660-12-0060 sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 7 summarizes the TPR criteria and their applicability to the proposed rezone application.

Table 7 Summary of Criteria in OAR 660-012-0060

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant affect on transportation facilities.	Yes *See response below*
2	Describes measures for complying with Criteria #1 where a significant effect is identified.	Yes *See response below*
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	No
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes *See response below*
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No (Lands are part of a master plan area)
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No (No concurrent site plan)
7	Outlines requirements for a local street plan, access management plan, or future street plan for commercial areas.	No (Commercial lands are not proposed)
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No (No concurrent site plan)

As shown, there are eight criteria that apply to Plan and Land Use Regulation Amendments. Of these, Criteria #1, #2, and #4 are applicable to the proposed land use action. Applicable sections of these criteria are provided below in italics with a corresponding response shown in standard font.

> *OAR 660-12-0060 (1) Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a transportation facility if it would:*
>
> > *(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);*
> >
> > *(b) Change standards implementing a functional classification system; or*

(c) As measured at the end of the planning period identified in the adopted transportation system plan:

(A) Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;

Response: Based on the incremental traffic increase from *EFU* to *MUC-1* zoning, the functional classification of all the adjacent roadways will not be affected with the proposed zone change.

(B) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan; or

Response: Each of the study intersections along OR 213 performs below the minimum acceptable performance standard in the OHP with the existing zoning.

(C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.

Response: The performance of two study intersections along OR 213 was forecast to be degraded by a volume-to-capacity ratio increase of more than 0.01 with the incremental trips from the proposed rezone. As a result, the proposed rezone was found to have a significant effect on the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road.

OAR 660-12-0060 (2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished through one or a combination of the following:

(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

(d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Local governments

shall as part of the amendment specify when measures or improvements provided pursuant to this subsection will be provided.

Response: The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.

The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213.

OAR 660-12-0060 (4) Determinations under sections (1)-(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.

(a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.

(b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:

(D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.

(e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).

Response: The project team has been coordinating assumed transportation improvements and the study scope extensively with ODOT Region 1 and City of Oregon City staff. This coordination has included written documentation as well as joint meetings with the ODOT, City, and project team staff.

FINDINGS

Based on the analysis presented in this report, the proposed rezone of the 9.73-acre study site from *Future Urban* (FU) zoning to *Mixed-Use Corridor* (MUC) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements assuming provision of the recommended mitigations. Key findings and recommendations from the analysis presented in this report are summarized below.

Findings

- The proposed 9.73-acre rezone from the *Future Urban* zoning to the City's *Mixed-Use Corridor (MUC-1)* zoning was estimated to generate an additional 173 net new weekday p.m. peak hour trips.
- All of the City-maintained study area intersections were forecast to operate acceptably with the existing and proposed zoning in the horizon analysis period.
- All of the OR 213 study intersections were forecast to exceed ODOT mobility standards during 2027 future year weekday p.m. peak hour traffic conditions under the existing zoning.
- The additional trips associated with the proposed rezone were forecast to have an incremental impact on the study intersections and that impact was found to constitute a *Significant Effect* at two locations.
    A. City of Oregon City-maintained study intersections were forecast to continue to operate acceptably.
    B. The intersection volume-to-capacity ratio was forecast to increase by more than 0.01 at the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road with the incremental trips from the proposed rezone. This change represents a significant effect per the thresholds established by ODOT Region 1 staff.
    C. Other ODOT-maintained study intersections along OR 213 were forecast to experience a volume-to-capacity ratio increase not greater than 0.01 and thus were not significantly effected.
- The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.
- The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213 or with the long-term planned improvement of a five-lane cross section extending south through Meyers Road (*Oregon City TSP).*
- The findings listed above are premised on the assumed site-generated trip generation for the MUC-1 zoning.

- Interconnectivity should be reviewed with the future site plan development application(s) (including within the subject parcel) to provide direct and convenient multimodal access to the site.
- The City of Oregon City could elect to approve the proposed rezone by:
    1. Making an interpretation that the extension of Meyers Road from OR 213 to its existing terminus is reasonably funded and finding that the improvement project identified for the Meyers Road/OR 213 intersection in the City's Transportation System Plan includes separate left-turn, through, and right-turn lanes on the westbound (new) approach to OR 213.
    2. Other options available to the City, as appropriate.

Please contact us if you have any questions regarding this zone change analysis.

We trust this letter adequately addresses the traffic impacts associated with the proposed rezone application. Please contact us if you have any questions or comments regarding the contents of this report or the analysis performed.

Sincerely,
KITTELSON & ASSOCIATES, INC.

CSB FOR
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Cc: Dan Drentlaw, City of Oregon City
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REGISTERED PROFESSIONAL ENGINEER 62836PE OREGON JULY 11, 2000 CHRISTOPHER LYNN BREHMER
Christopher Lynn Brehmer
SIGNED 6-21-10
Expires: 12-31-11

ATTACHMENTS:

A. Horizon Year Existing Zoning Operations Analysis Worksheets

B. City MUC Zoning Code Provisions

C. Horizon Year Proposed Zoning Operations Analysis Worksheets

D. Horizon Year Operations Analysis Worksheets with Meyers Road Extension

REFERENCES:

1. City of Oregon City. *City of Oregon City Transportation System Plan.* 2001.
2. City of Oregon City. *Beavercreek Road Concept Plan.* August 2008.
3. City of Oregon City. *Park Place Concept Plan.* March 12, 2008.
4. Kittelson & Associates, Inc. *Highway 213 Urban Corridor Design Study.* June 2000.
5. Kittelson & Associates, Inc. *OR 213: I-205 - Redland Rd O'Xing.* 2009.
6. TriMet. http://trimet.org/ June 2010.
7. Oregon Department of Transportation. *1999 Oregon Highway Plan.* March 1999.
8. Department of Land Conservation and Development. Oregon Administrative Rule 660-12-0060, http://arcweb.sos.state.or.us/banners/rules.htm.
9. Institute of Transportation Engineers. *Trip Generation: 8th Edition*. 2008.
10. Institute of Transportation Engineers. *Trip Generation Handbook: 2nd Edition*. 2004.

Attachment A
Horizon Year Existing Zoning Operations Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	57	265	7	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m95	#602	m38	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.1	25.9	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	86.3	58.8	31.0	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	C	F	F	C
Approach Delay (s)		132.1			97.6			56.6			77.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	88.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

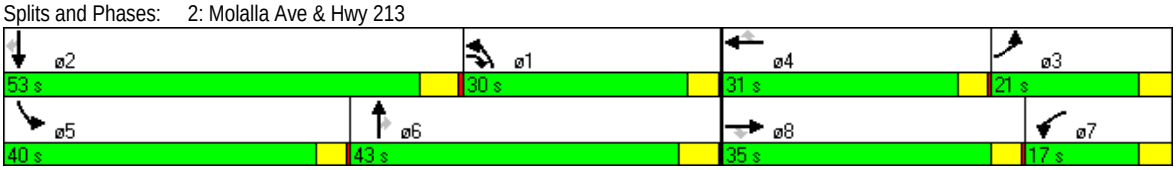
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.89	1.53	0.79	0.66	0.97	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	425	~501	230	0	308	260	96	~467	~847	12
Queue Length 95th (ft)	#273	305	544	#778	334	97	m#444	m306	m149	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.89	1.53	0.72	0.64	0.97	0.58	0.40	1.05	1.20	0.25

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	551	405	279	80	342	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.19	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.84	1.53	0.79	0.27	0.97	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.4	57.3	52.0	46.7	53.5	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.11	1.20	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	9.6	256.0	10.9	0.5	30.3	1.6	1.2	28.4	90.3	0.0
Delay (s)	61.3	62.4	47.0	313.3	62.9	47.2	88.8	46.4	45.1	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		53.7			149.0			58.7			102.2	
Approach LOS		D			F			E			F	

Intersection Summary				
HCM Average Control Delay	93.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	107.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	325	250	775	1800	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				325	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	342	263	816	1895	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	342	263	816	1895	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	
Control Delay	89.9	33.9	102.3	11.5	22.9	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	33.9	102.3	11.5	22.9	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	218	232	315	911	3	
Queue Length 95th (ft)	#555	315	#409	425	m344	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	977	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Meyers Rd & Hwy 213

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	325	250	775	1800	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	342	263	816	1895	549
RTOR Reduction (vph)	0	6	0	0	0	147
Lane Group Flow (vph)	395	336	263	816	1895	402
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.15	0.44	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.53	0.96	0.61	1.00	0.48
Uniform Delay, d1	51.6	32.0	56.6	9.1	30.3	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.54	0.04
Incremental Delay, d2	37.3	0.8	44.1	2.1	5.3	0.2
Delay (s)	88.9	32.8	100.8	11.2	21.8	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.9			33.0	17.1	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.978		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1858	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.544			0.690		0.950			0.950		
Satd. Flow (perm)	0	1010	0	0	1311	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				179		5			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	234	179	26	859	0	365	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.76			0.91	0.39	0.20	0.92		0.92	1.45	
Control Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			202	0	22	673		315	~2292	
Queue Length 95th (ft)		#236			#358	64	53	#964		#498	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		216			273	470	152	973		418	1276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.72			0.86	0.38	0.17	0.88		0.87	1.45	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 130.2	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1859	1576	1787	1824		1805	1835	
Flt Permitted		0.54			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1011			1311	1576	1787	1824		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
RTOR Reduction (vph)	0	6	0	0	0	144	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	234	35	26	857	0	365	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		24.6			24.6	24.6	5.8	67.5		27.7	89.4	
Effective Green, g (s)		25.6			25.6	25.6	6.8	68.5		28.7	90.4	
Actuated g/C Ratio		0.19			0.19	0.19	0.05	0.52		0.22	0.69	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		196			255	306	92	948		393	1259	
v/s Ratio Prot							0.01	c0.47		0.20	c1.01	
v/s Ratio Perm		0.15			c0.18	0.02						
v/c Ratio		0.77			0.92	0.11	0.28	0.90		0.93	1.47	
Uniform Delay, d1		50.3			52.1	43.8	60.2	28.7		50.5	20.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.3			34.7	0.2	1.7	11.8		27.9	214.9	
Delay (s)		66.6			86.8	43.9	61.8	40.4		78.4	235.6	
Level of Service		E			F	D	E	D		E	F	
Approach Delay (s)		66.6			68.2			41.0			209.7	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	147.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	131.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

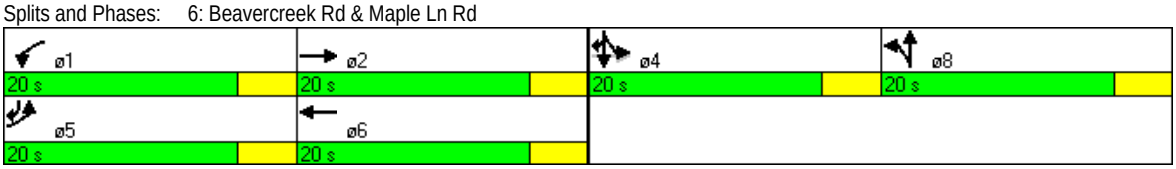
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.993	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1869	0
Flt Permitted	0.757						0.112					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	213	1881	0	1900	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102									7	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1329	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.81	
Control Delay	41.7	0.5					3.0	3.4			11.4	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.0	3.4			11.4	
Queue Length 50th (ft)	29	0					1	90			338	
Queue Length 95th (ft)	59	0					5	178			#923	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	394					186	1645			1635	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.81	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 83.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1869	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1564	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.0	
Delay (s)	43.6	36.8					1.9	2.9			9.8	
Level of Service	D	D					A	A			A	
Approach Delay (s)		42.0			0.0			2.9			9.8	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.977	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1856	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1856	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			23	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1282	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.87	
Control Delay	44.2	13.8	51.0	3.8	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	18.9	
Queue Length 50th (ft)	54	0	14	85	342	
Queue Length 95th (ft)	95	23	39	163	#1023	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1478	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1857	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1857	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	216
RTOR Reduction (vph)	0	26	0	0	6	0
Lane Group Flow (vph)	97	3	25	656	1276	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1407	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.69	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.91	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	10.1	
Delay (s)	44.4	38.1	110.5	3.2	18.8	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	18.8	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment B
City MUC Zoning Code Provisions

Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT*

Editor's note—

Ord. No. 08-1014, adopted Jul. 1, 2009, repealed Chapter 17.29 in its entirety and enacted new provisions to read as herein set out. Prior to amendment, Chapter 17.29 pertained to similar subject matter. See Ordinance Disposition List for derivation.

Sections:

17.29.010 - Designated.
17.29.020 - Permitted uses—MUC-1 and MUC-2.
17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.
17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.
17.29.050 - Dimensional standards—MUC-1.
17.29.060 - Dimensional standards—MUC-2.
17.29.070 - Floor area ratio (FAR).

17.29.010 - Designated.

The Mixed-Use Corridor (MUC) District is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high-density residential, office, and small-scale retail uses are encouraged in this District. Moderate density (MUC-1) and high density (MUC-2) options are available within the MUC zoning district. The area along 7th Street is an example of MUC-1, and the area along Warner-Milne Road is an example of MUC-2.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.020 - Permitted uses—MUC-1 and MUC-2.

A. Banquet, conference facilities and meeting rooms;

B. Bed and breakfast and other lodging facilities for up to ten guests per night;

C. Child care centers and/or nursery schools;

D. Indoor entertainment centers and arcades;

E. Health and fitness clubs;

F. Medical and dental clinics, outpatient; infirmary services;

G. Museums, libraries and cultural facilities;

H. Offices, including finance, insurance, real estate and government;

I. Outdoor markets, such as produce stands, craft markets and farmers markets that are operated on the weekends and after six p.m. during the weekday;

J. Postal services;

K. Parks, playgrounds, play fields and community or neighborhood centers;

L. Repair shops, for radio and television, office equipment, bicycles, electronic equipment, shoes and small appliances and equipment;

N. Residential units, multi-family;

O. Restaurants, eating and drinking establishments without a drive through;

P. Services, including personal, professional, educational and financial services; laundry and dry-cleaning;

Q. Retail trade, including grocery, hardware and gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores, and similar, provided the maximum footprint for a stand alone building with a single store or multiple buildings with the same business does not exceed sixty thousand square feet;

R. Seasonal sales, subject to Oregon City Municipal Code Section 17.54.060;

S. Assisted living facilities; nursing homes and group homes for over fifteen patients;

T. Studios and galleries, including dance, art, photography, music and other arts;

U. Utilities: Basic and linear facilities, such as water, sewer, power, telephone, cable, electrical and natural gas lines, not including major facilities such as sewage and water treatment plants, pump stations, water tanks, telephone exchanges and cell towers.

V. Veterinary clinics or pet hospitals, pet day care.

W. Home occupations;

X. Research and development activities;

Y. Temporary real estate offices in model dwellings located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;

Z. Residential care facility.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.

The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:

A. Ancillary drive-in or drive-through facilities;

B. Emergency service facilities (police and fire), excluding correctional facilities;

C. Gas stations;

D. Outdoor markets that do not meet the criteria of Section 17.29.020H.;

E. Public utilities and services including sub-stations (such as buildings, plants and other structures);

F. Public and/or private educational or training facilities;

G. Religious institutions;

H. Retail trade, including gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores and any other use permitted in the neighborhood, historic or limited commercial districts that have a footprint for a stand alone building with a single store in excess of sixty thousand square feet in the MUC-1 or MUC-2 zone;

I. Hotels and motels, commercial lodging;

J. Hospitals;

K. Parking structures and lots not in conjunction with a primary use;

L. Passenger terminals (water, auto, bus, train).

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.

The following uses are prohibited in the MUC district:

A. Distributing, wholesaling and warehousing;

B. Outdoor sales or storage;

C. Correctional facilities;

D. Heavy equipment service, repair, sales, storage or rental[2] (including but not limited to construction equipment and machinery and farming equipment);

E. Kennels;

E. Motor vehicle and recreational vehicle sales and incidental service;

F. Motor vehicle and recreational vehicle repair/service;

G. Outdoor sales or storage;

H. Self-service storage facilities.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.050 - Dimensional standards—MUC-1.

A. Minimum lot areas: None.

B. Maximum building height: Forty feet or three stories, whichever is less.

C. Minimum required setbacks if not abutting a residential zone: None.

D. Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every one foot of building height over thirty-five feet.

E. Maximum allowed setbacks.

1. Front yard: Five feet (may be extended with Site Plan and Design Review (Section 17.62.055).
2. Interior side yard: None.
3. Corner side setback abutting street: Thirty feet provided the Site Plan and Design Review requirements of Section 17.62.055 are met.
4. Rear yard: None.

F. Maximum lot coverage of the building and parking lot: Eighty percent.

G. Minimum required landscaping (including landscaping within a parking lot): Twenty percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.060 - Dimensional standards—MUC-2.

A. Minimum lot area: None.

B. Minimum floor area ratio: 0.25.

C. Minimum building height: Twenty-five feet or two stories except for accessory structures or buildings under one thousand square feet.

D. Maximum building height: Sixty feet.

E. Minimum required setbacks if not abutting a residential zone: None.

F.

Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every two feet of building height over thirty-five feet.

G. Maximum Allowed Setbacks.

1. Front yard: Five feet (may be expanded with Site Plan and Design Review Section 17.62.055).

2. Interior side yard: None.

3. Corner side yard abutting street: Twenty feet provided the site plan and design review requirements of Section 17.62.055 are met.

4. Rear yard: None.

H. Maximum site coverage of building and parking lot: Ninety percent.

I. Minimum landscaping requirement (including parking lot): Ten percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.070 - Floor area ratio (FAR).

Floor area ratios are a tool for regulating the intensity of development. Minimum FARs help to achieve more intensive forms of building development in areas appropriate for larger-scale buildings and higher residential densities.

A. Standards.

1. The minimum floor area ratios contained in 17.29.050 and 17.29.060 apply to all non-residential and mixed-use building development, except stand-alone commercial buildings less than ten thousand square feet in floor area.

2. Required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs.

3. An individual phase of a project shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, that the required density for the project will be achieved at project build out.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Attachment C
Horizon Year Proposed
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	57	264	7	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m95	#602	m38	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.1	25.9	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	86.3	58.7	31.0	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	C	F	F	C
Approach Delay (s)		132.6			102.5			56.5			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	89.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

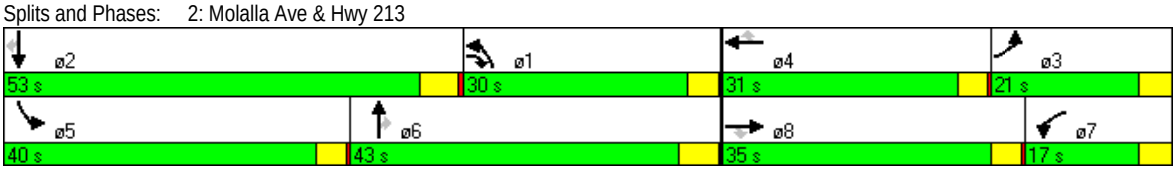
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.91	1.53	0.79	0.66	1.06	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	441	~501	230	0	~366	259	96	~467	~847	12
Queue Length 95th (ft)	#273	305	563	#778	334	97	m#513	m305	m150	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.91	1.53	0.72	0.64	1.06	0.58	0.40	1.05	1.20	0.25

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	564	405	279	80	376	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.21	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.86	1.53	0.79	0.27	1.06	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.9	57.3	52.0	46.7	54.0	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.09	1.17	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	11.3	256.0	10.9	0.5	56.2	1.6	1.1	28.4	90.3	0.0
Delay (s)	61.3	62.4	49.1	313.3	62.9	47.2	114.6	45.8	44.0	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		54.8			149.0			67.2			102.2	
Approach LOS		D			F			E			F	

Intersection Summary				
HCM Average Control Delay	95.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	108.9%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	330	262	807	1813	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				323	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	347	276	849	1908	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	347	276	849	1908	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	
Control Delay	89.9	34.1	113.3	12.1	24.8	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	34.1	113.3	12.1	24.8	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	222	~249	339	~920	3	
Queue Length 95th (ft)	#555	321	#435	458	m367	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	976	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Meyers Rd & Hwy 213

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	330	262	807	1813	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	347	276	849	1908	549
RTOR Reduction (vph)	0	6	0	0	0	146
Lane Group Flow (vph)	395	341	276	849	1908	403
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.16	0.46	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.54	1.01	0.63	1.00	0.49
Uniform Delay, d1	51.6	32.1	57.0	9.4	30.5	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.55	0.04
Incremental Delay, d2	37.3	0.9	57.3	2.3	6.8	0.2
Delay (s)	88.9	33.0	114.3	11.7	23.6	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.8			36.9	18.6	
Approach LOS	E			D	B	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.977		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1856	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.538			0.676		0.950			0.950		
Satd. Flow (perm)	0	999	0	0	1284	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				225		6			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	246	225	26	864	0	383	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.74			0.94	0.45	0.20	0.94		0.95	1.46	
Control Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			216	0	22	679		334	~2292	
Queue Length 95th (ft)		#238			#387	70	53	#974		#534	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		211			264	503	150	962		413	1263	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.74			0.93	0.45	0.17	0.90		0.93	1.46	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 131.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1856	1576	1787	1823		1805	1835	
Flt Permitted		0.54			0.68	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		998			1285	1576	1787	1823		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
RTOR Reduction (vph)	0	6	0	0	0	180	0	3	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	246	45	26	861	0	383	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		25.9			25.9	25.9	5.8	66.7		28.5	89.4	
Effective Green, g (s)		26.9			26.9	26.9	6.8	67.7		29.5	90.4	
Actuated g/C Ratio		0.20			0.20	0.20	0.05	0.51		0.22	0.68	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		202			260	319	91	927		400	1246	
v/s Ratio Prot							0.01	c0.47		0.21	c1.01	
v/s Ratio Perm		0.15			c0.19	0.03						
v/c Ratio		0.74			0.95	0.14	0.29	0.93		0.96	1.48	
Uniform Delay, d1		49.9			52.4	43.6	60.8	30.5		51.2	21.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.8			40.9	0.2	1.7	15.0		33.7	221.8	
Delay (s)		63.7			93.3	43.8	62.5	45.5		84.9	243.1	
Level of Service		E			F	D	E	D		F	F	
Approach Delay (s)		63.7			69.7			46.0			216.0	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	150.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	133.1	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

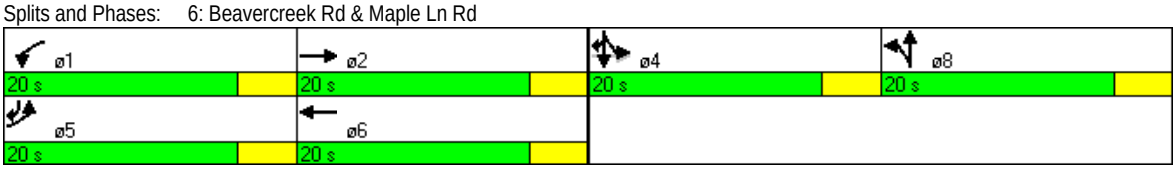
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	206	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	140		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	175	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.53		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.7		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 100
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.852			0.993			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1632	0	1805	1619	0	1805	1869	0	1805	1869	0
Flt Permitted	0.715			0.746			0.078			0.325		
Satd. Flow (perm)	1358	1632	0	1417	1619	0	148	1869	0	618	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			7			8	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	17	0	76	65	0	11	771	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.33	0.08		0.44	0.26		0.09	0.51		0.06	0.87	
Control Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Length 50th (ft)	24	0		34	0		1	103		3	357	
Queue Length 95th (ft)	55	18		73	33		7	217		11	#918	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	275	343		287	379		120	1522		503	1522	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.05		0.26	0.17		0.09	0.51		0.06	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 79.2	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1805	1619		1805	1870		1805	1869	
Flt Permitted	0.71	1.00		0.75	1.00		0.08	1.00		0.32	1.00	
Satd. Flow (perm)	1358	1632		1418	1619		147	1870		617	1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
RTOR Reduction (vph)	0	14	0	0	57	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	3	0	76	8	0	11	770	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Effective Green, g (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	171		149	170		117	1487		491	1486	
v/s Ratio Prot		0.00			0.00			0.41			c0.71	
v/s Ratio Perm	0.04			c0.05			0.07			0.05		
v/c Ratio	0.37	0.02		0.51	0.05		0.09	0.52		0.07	0.89	
Uniform Delay, d1	33.3	32.1		33.9	32.2		1.8	2.9		1.8	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.0		2.9	0.1		1.6	1.3		0.3	8.3	
Delay (s)	35.0	32.1		36.8	32.3		3.4	4.1		2.0	14.0	
Level of Service	C	C		D	C		A	A		A	B	
Approach Delay (s)		34.3			34.7			4.1			13.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.972	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1847	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1847	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			29	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	29	25	659	1074	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	29	25	659	1351	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.54	0.13	0.32	0.44	0.97	
Control Delay	45.8	13.3	52.3	4.6	31.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.8	13.3	52.3	4.6	31.4	
Queue Length 50th (ft)	67	0	14	94	456	
Queue Length 95th (ft)	114	23	40	182	#1143	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	313	304	78	1499	1398	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.39	0.10	0.32	0.44	0.97	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 92.3	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1847	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1847	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	29	25	659	1074	277
RTOR Reduction (vph)	0	25	0	0	8	0
Lane Group Flow (vph)	122	4	25	659	1343	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5	1.7	75.2	69.5	
Effective Green, g (s)	11.5	11.5	1.7	75.2	69.5	
Actuated g/C Ratio	0.12	0.12	0.02	0.79	0.73	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	219	196	32	1509	1356	
v/s Ratio Prot	c0.07		0.01	c0.35	c0.73	
v/s Ratio Perm		0.00				
v/c Ratio	0.56	0.02	0.78	0.44	0.99	
Uniform Delay, d1	39.2	36.6	46.3	3.1	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.0	74.5	0.9	22.3	
Delay (s)	42.3	36.7	120.9	4.0	34.6	
Level of Service	D	D	F	A	C	
Approach Delay (s)	41.2			8.3	34.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment D
Horizon Year Operations Analysis Worksheets with Meyers Road Extension

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	58	252	6	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m98	#602	m46	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.35	0.82	1.20	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.2	26.2	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	90.0	65.3	41.8	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	D	F	F	C
Approach Delay (s)		132.1			97.6			63.5			77.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	89.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

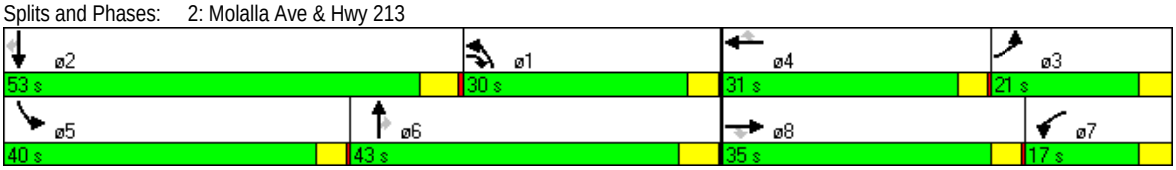
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			27			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.10	0.58	0.80	0.52	0.97	0.59	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~610	133	230	0	281	214	20	228	~1024	13
Queue Length 95th (ft)	#273	225	#779	#223	334	75	m241	m220	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.10	0.58	0.72	0.50	0.97	0.59	0.13	0.66	1.26	0.24

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	17	0	0	69
Lane Group Flow (vph)	184	184	612	168	279	49	342	763	59	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.22		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.04	0.58	0.80	0.17	0.97	0.58	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.0	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	47.0	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	90.9	54.7	64.5	46.3	59.8	34.5	30.9	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	C	C	D	F	B
Approach Delay (s)		82.8			55.5			41.6			121.0	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM Average Control Delay	85.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

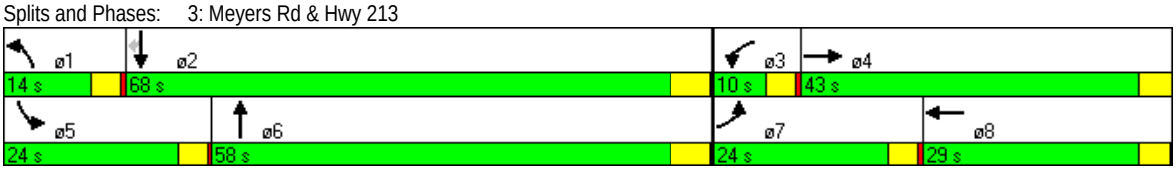
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00		1.00		0.97
Frt		0.903			0.963			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1664	0	1770	1785	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1762	1664	0	1765	1785	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			11			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	447	0	53	418	0	184	842	0	316	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38
Control Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	319		47	~446		~205	~855		~345	~974	8
Queue Length 95th (ft)	#459	#499		#118	#658		#360	#1108		m#262	m515	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	554		79	340		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
RTOR Reduction (vph)	0	48	0	0	9	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	399	0	53	409	0	184	840	0	316	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	341		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.23		c0.10	0.46		c0.18	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.79		0.84	1.20		1.29	1.15		1.21	1.12	0.31
Uniform Delay, d1	57.0	43.1		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.35	0.62	0.19
Incremental Delay, d2	68.3	8.2		60.8	114.7		171.5	81.4		96.2	53.0	0.1
Delay (s)	125.3	51.3		125.6	169.3		233.5	121.8		173.7	74.8	4.3
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.3			164.4			141.8			78.5	
Approach LOS		F			F			F			E	

Intersection Summary				
HCM Average Control Delay	101.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	109.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.991			0.994	
Flt Protected		0.984			0.986		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1873	1615	1787	1831	0	1805	1836	0
Flt Permitted		0.590			0.797		0.950			0.950		
Satd. Flow (perm)	0	1095	0	0	1514	1576	1787	1831	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	182	101	26	859	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.84			0.73	0.29	0.21	0.82		0.76	1.42	
Control Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		119			143	0	21	538		202	~2154	
Queue Length 95th (ft)		#220			230	49	53	#961		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		250			339	431	163	1060		448	1339	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.62			0.54	0.23	0.16	0.81		0.58	1.42	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 121.8	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1825			1873	1577	1787	1831		1805	1836	
Flt Permitted		0.59			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1095			1515	1577	1787	1831		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	85	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	182	16	26	857	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		19.0			19.0	19.0	4.7	70.4		22.1	87.8	
Effective Green, g (s)		20.0			20.0	20.0	5.7	71.4		23.1	88.8	
Actuated g/C Ratio		0.16			0.16	0.16	0.05	0.58		0.19	0.72	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177			245	255	82	1059		338	1320	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.12	0.01						
v/c Ratio		0.85			0.74	0.06	0.32	0.81		0.77	1.44	
Uniform Delay, d1		50.3			49.3	43.8	57.0	20.7		47.7	17.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		29.5			11.5	0.1	2.2	4.7		10.1	202.2	
Delay (s)		79.8			60.8	43.9	59.2	25.3		57.8	219.5	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		79.8			54.8			26.3			200.0	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM Average Control Delay	138.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	123.5	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

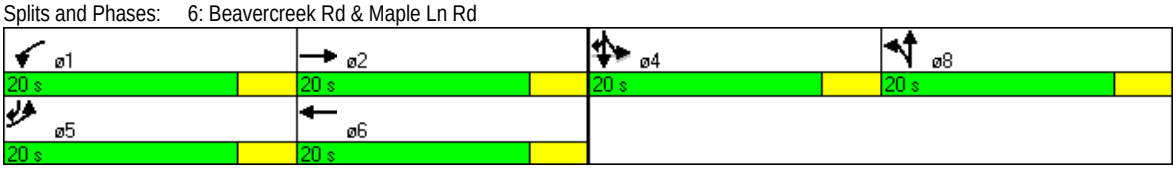
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.989	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1862	0
Flt Permitted	0.757						0.111					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	211	1881	0	1900	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108									12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1330	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.82	
Control Delay	41.7	0.5					3.1	3.4			11.6	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.1	3.4			11.6	
Queue Length 50th (ft)	29	0					1	90			340	
Queue Length 95th (ft)	59	0					5	178			#925	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	399					185	1645			1630	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.82	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 83.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1862	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1559	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.1	
Delay (s)	43.6	36.8					1.9	2.9			10.0	
Level of Service	D	D					A	A			B	
Approach Delay (s)		42.0			0.0			2.9			10.0	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.980	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1862	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1862	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			19	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1250	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.84	
Control Delay	44.2	13.8	51.0	3.8	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	17.3	
Queue Length 50th (ft)	54	0	14	85	317	
Queue Length 95th (ft)	95	23	39	163	#983	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1482	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1862	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	184
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	97	3	25	656	1245	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1411	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.67	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.88	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	8.3	
Delay (s)	44.4	38.1	110.5	3.2	16.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	16.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 57.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	58	242	6	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m96	#604	m49	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.36	0.82	1.29	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.0	25.8	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	90.3	64.9	44.9	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	D	F	F	C
Approach Delay (s)		132.6			102.5			63.6			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	91.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

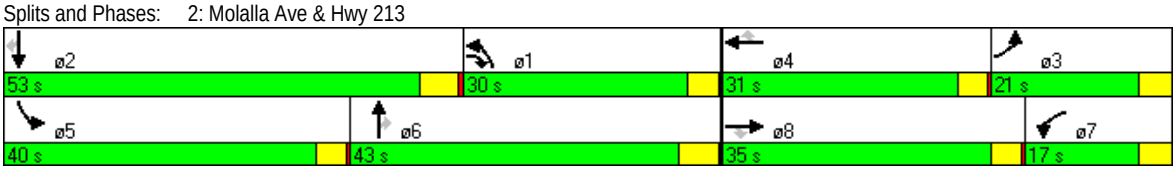
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			26			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.12	0.58	0.80	0.52	0.97	0.61	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~634	133	230	0	283	236	22	228	~1024	13
Queue Length 95th (ft)	#273	225	#804	#223	334	75	m239	m234	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.12	0.58	0.72	0.50	0.97	0.61	0.13	0.66	1.26	0.24

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	16	0	0	69
Lane Group Flow (vph)	184	184	625	168	279	49	342	797	60	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.23		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.06	0.58	0.80	0.17	0.97	0.61	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.4	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	53.7	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	97.6	54.7	64.5	46.3	60.1	35.0	31.0	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	D	C	D	F	B
Approach Delay (s)		87.1			55.5			41.8			121.0	
Approach LOS		F			E			D			F	

Intersection Summary				
HCM Average Control Delay	86.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	102.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

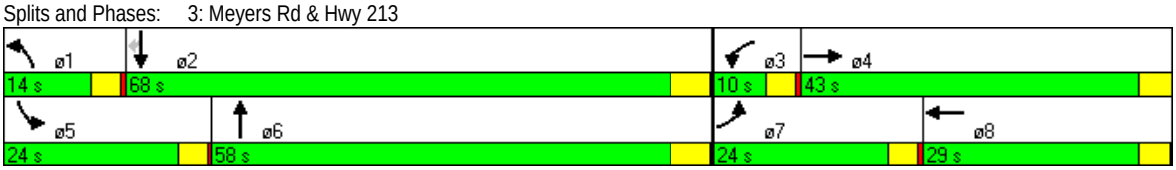
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00		0.97
Frt		0.904			0.956			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1771	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1763	1666	0	1765	1771	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66			14			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	464	0	184	842	0	329	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38
Control Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	~528		~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#746		#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	552		79	339		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	11	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	453	0	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	506		63	338		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.26		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.80		0.84	1.34		1.29	1.15		1.26	1.12	0.31
Uniform Delay, d1	57.0	43.3		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	8.9		60.8	171.4		171.5	81.4		118.0	53.0	0.1
Delay (s)	125.3	52.2		125.6	226.0		233.5	121.8		195.2	75.0	4.6
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.7			215.7			141.8			82.1	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM Average Control Delay	109.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.17			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	112.8%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.990			0.994	
Flt Protected		0.984			0.984		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1870	1615	1787	1830	0	1805	1836	0
Flt Permitted		0.581			0.765		0.950			0.950		
Satd. Flow (perm)	0	1079	0	0	1454	1576	1787	1830	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	194	101	26	864	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.81			0.77	0.28	0.21	0.83		0.76	1.43	
Control Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		120			155	0	21	566		206	~2201	
Queue Length 95th (ft)		#223			247	49	53	#973		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		244			322	427	161	1047		444	1325	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.64			0.60	0.24	0.16	0.83		0.59	1.43	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 123.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Glen Oak Rd & Hwy 213

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1869	1577	1787	1830		1805	1836	
Flt Permitted		0.58			0.76	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1078			1453	1577	1787	1830		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	84	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	194	17	26	862	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		20.2			20.2	20.2	4.8	70.3		22.3	87.8	
Effective Green, g (s)		21.2			21.2	21.2	5.8	71.3		23.3	88.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.05	0.57		0.19	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		183			247	268	83	1046		337	1306	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.13	0.01						
v/c Ratio		0.82			0.79	0.06	0.31	0.82		0.77	1.45	
Uniform Delay, d1		50.0			49.6	43.5	57.6	21.7		48.2	18.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		24.6			15.0	0.1	2.2	5.4		10.4	209.0	
Delay (s)		74.5			64.7	43.6	59.7	27.1		58.7	227.0	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		74.5			57.4			28.0			206.8	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM Average Control Delay	142.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	124.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

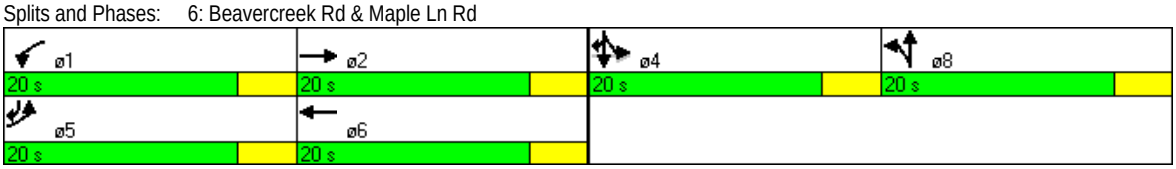
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1715	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1715	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			39				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	208	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	141		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	32	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	176	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.54		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.8		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM Average Control Delay	45.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	83.7%	ICU Level of Service	E	
Analysis Period (min)	15			

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.914			0.997			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1773	0	1805	1737	0	1805	1876	0	1805	1862	0
Flt Permitted	0.627			0.734			0.083			0.336		
Satd. Flow (perm)	1191	1773	0	1395	1737	0	158	1876	0	638	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			3			12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	36	0	29	111	0	11	752	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.40	0.17		0.19	0.44		0.08	0.49		0.06	0.86	
Control Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Length 50th (ft)	23	8		12	20		1	90		2	326	
Queue Length 95th (ft)	56	34		35	64		6	190		10	#893	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	246	379		288	410		130	1539		523	1529	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.09		0.10	0.27		0.08	0.49		0.06	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 82	
Actuated Cycle Length: 77.5	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Meyers Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1773		1805	1736		1805	1876		1805	1862	
Flt Permitted	0.63	1.00		0.73	1.00		0.08	1.00		0.34	1.00	
Satd. Flow (perm)	1192	1773		1394	1736		158	1876		639	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
RTOR Reduction (vph)	0	14	0	0	58	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	22	0	29	53	0	11	751	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Effective Green, g (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	172		135	169		127	1502		512	1491	
v/s Ratio Prot		0.01			0.03			0.40			c0.71	
v/s Ratio Perm	c0.04			0.02			0.07			0.05		
v/c Ratio	0.46	0.13		0.21	0.31		0.09	0.50		0.06	0.89	
Uniform Delay, d1	33.4	32.3		32.6	32.9		1.7	2.6		1.6	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3		0.8	1.1		1.3	1.2		0.2	8.0	
Delay (s)	36.2	32.6		33.4	34.0		3.0	3.8		1.9	13.4	
Level of Service	D	C		C	C		A	A		A	B	
Approach Delay (s)		34.8			33.9			3.8			13.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.979	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1860	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			21	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	29	25	659	1074	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	29	25	659	1272	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.49	0.14	0.31	0.42	0.86	
Control Delay	44.4	13.7	51.2	4.0	18.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.4	13.7	51.2	4.0	18.6	
Queue Length 50th (ft)	57	0	14	88	342	
Queue Length 95th (ft)	100	23	40	168	#1017	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1574	1477	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.09	0.31	0.42	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1860	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	29	25	659	1074	198
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	103	3	25	659	1267	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	1.7	75.9	70.2	
Effective Green, g (s)	9.1	9.1	1.7	75.9	70.2	
Actuated g/C Ratio	0.10	0.10	0.02	0.82	0.75	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	158	33	1551	1404	
v/s Ratio Prot	c0.06		0.01	c0.35	c0.68	
v/s Ratio Perm		0.00				
v/c Ratio	0.58	0.02	0.76	0.42	0.90	
Uniform Delay, d1	40.1	37.9	45.4	2.4	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.0	65.1	0.9	9.7	
Delay (s)	44.9	38.0	110.6	3.3	18.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.4			7.2	18.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

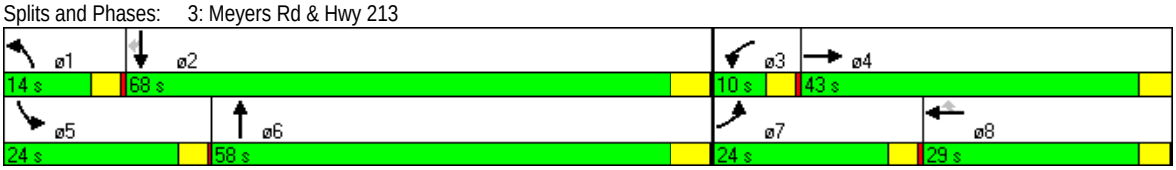
Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		50	150		0	225		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00	1.00		1.00		0.97
Frt		0.904				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1863	1583	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1666	0	1765	1863	1553	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				41		3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	328	136	184	842	0	329	1842	313
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Detector Phase	7	4		3	8	8	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0	20.0	14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	29.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	21.5%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0	25.0	10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5	3.5	3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0					5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0	11.0					20.0	20.0
Pedestrian Calls (#/hr)	0	0			0	0					0	0
v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38
Control Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	288	73	~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#476	141	#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150		50	150			225		225
Base Capacity (vph)	275	551		79	345	321	144	746		263	1671	815
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0	4.0	3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	0	33	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	328	103	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Actuated Green, G (s)	20.0	40.9		4.8	25.7	25.7	10.1	52.2		20.1	62.2	62.2
Effective Green, g (s)	21.0	40.9		4.8	25.7	25.7	11.1	54.2		20.1	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19	0.19	0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	355	296	144	733		264	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.18		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm						0.07						0.15
v/c Ratio	1.05	0.80		0.84	0.92	0.35	1.28	1.15		1.25	1.12	0.31
Uniform Delay, d1	57.0	43.4		64.7	53.7	47.4	62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	9.0		60.8	29.1	0.7	167.8	81.4		113.8	53.0	0.1
Delay (s)	125.3	52.4		125.6	82.7	48.1	229.8	121.8		190.9	75.0	4.6
Level of Service	F	D		F	F	D	F	F		F	E	A
Approach Delay (s)		80.8			78.0			141.1			81.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	93.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

August 9, 2010

Mr. Pete Walter
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF TRANSPORTATION PLANNING RULE ANALYSIS – PHIL GENTEMANN – ZC10-01

Dear Mr. Walter:

In response to your request, I have reviewed the Transportation Planning Rule Analysis (TPRA) in support of the proposed rezoning of property owned by Phil Gentemann adjacent to Beavercreek Road. The TPRA was prepared by Chris Brehmer, PE of Kittelson & Associates, Inc. The TPRA is dated June 21, 2010.

The TIA describes a proposal to rezone a 9.73-acre site adjacent to Beavercreek Road in the vicinity of Meyers Road. The site is located east of Beavercreek Road and is in the area analyzed as part of the Beavercreek Road Concept Plan. Final rezoning by the City has not been undertaken on the Beavercreek Road Concept Plan.

According to the Beavercreek Road Concept Plan, the subject parcel is part of a mixed use area and the applicant's requested zoning is Mixed Use Corridor (MUC-1). This is not, however, a specific proposal for a development at this time. Thus, the requested rezoning is based on a reasonable future use of the 9.73-acre site consistent with the MUC-1 zone. Assuming the requested zoning is granted, subsequent analysis will be required as specified by city code to assess the impact of the specific development.

Overall

I find the TPRA addresses the city's requirements and provides an adequate basis to evaluate impacts of the proposed rezoning, but it does not provide adequate basis for a specific development. Items that will need further attention in a subsequent Transportation Impact Analysis (TIA) are identified below as appropriate.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. It includes an analysis of the following intersections:

    - Highway 213/Beavercreek Road
    - Highway 213/Molalla Avenue
    - Highway 213/Meyers Road

- Highway 213/Glen Oak Road
- Thayer Road/Maplelane Road
- Beavercreek Road/Maplelane Road
- Beavercreek Road/Clairmont Drive
- Beavercreek Road/Loder Road
- Beavercreek Road/Meyers Road
- Beavercreek Road/Glen Oak Road
- Beavercreek Road/Henrici Road

These intersections are appropriate for the purposes of the impact of rezoning. A TIA undertaken for a specific development will also require additional intersections including the site access. Depending on the specific development, some intersections analyzed for this analysis may not need further analysis.

2. ***Traffic Counts.*** The traffic counts were not conducted for this analysis and are not necessary to assess the impact of the rezoning on future year (2027) conditions. Current traffic counts will, however, be required for a TIA undertaken for a specific development.

3. ***Trip Generation.*** The TPRA provides an explanation of the rationale for a mixed use development scenario based on the proposed zoning, overall parcel size, and limitations imposed on the parcel by the street network prescribed by the Beavercreek Road Concept Plan. It further provides a detailed analysis of trip generation using a combination of land uses consistent with MUC-1 zoning consisting of the following:

   - Shopping center (20,000 square feet)
   - Office (80,000 square feet)
   - Townhouse/condominium (30 units)

   Trip generation rates were provided for the PM peak period. Reductions for pass-by trips were accounted for in the calculations for the retail component. A modest reduction was also made to account for internal trips due to the mix of uses anticipated within the MUC-1 area. The net increase was calculated to be 173 new primary trips due to the rezoning.

   For the purposes of the analysis of the rezoning, the development assumptions appear reasonable. A TIA undertaken in support of a specific development proposal will likely be somewhat different.

4. ***Trip Distribution.*** The trip distribution is based on the assignment used for the applicable zone in the regional transportation model. The trip distribution patterns shown and the rationale for them appear reasonable.

5. ***Traffic Growth.*** The TPRA uses year 2027 as the horizon year. Traffic volumes for this year were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City. The traffic growth is consistent with the land use and development patterns developed by Metro in consultation with its member jurisdictions. The 2027 horizon year was agreed upon by the applicant, ODOT and the City.

The year 2027 traffic volumes are based on moderately high levels of growth in many parts of the region and the surrounding rural areas. This leads to high volumes of through traffic on key corridors, including Highway 213 and Beavercreek Road. Rural development patterns and levels are beyond the control of the City, but clearly have an impact on these facilities.

6. ***Analysis.*** Traffic operations analysis was conducted for the PM peak hour for 2027 with and without the proposed rezoning. In addition, at ODOT's request, the analysis was conducted using two versions of the street network: 1) with the planned extension of Meyers Road between Highway 213 and Beavercreek Road; and 2) without the extension of this section of Meyers Road.

   The analysis indicates that the intersections along Highway 213 from Beavercreek Road to Meyers Road are expected to exceed ODOT's mobility standards by 2027 without the development, but that other intersections are calculated to meet operational standards. The engineer notes that this is consistent with the analysis conducted for the Beavercreek Road Concept Plan.

   The "with rezoning" analysis adds the predicted 173 additional trips to the original year 2027 volumes. ODOT determined that if the rezoning caused the volume-to-capacity ratio (v/c) to increase by more than 0.01, they considered it to be a significant impact and thus requires mitigation. For the street network scenario that assumes Meyers Road is not extended, the two locations at which this criterion is met are: Highway 213/Molalla Avenue and Highway 213/Meyers Road. For the scenario that assumes Meyers Road is extended, the only intersection potentially exceeding the >0.01 v/c criterion is Highway 213/Meyers Road.

   In the engineer's discussion of mitigation, he indicates that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that it's performance in the "with rezoning" scenario is better than the 2017 scenario without the rezoning. The engineer also calculates that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

7. ***Turn Lanes.*** The analysis did not include a specific analysis of turn lanes at the site access since no specific development is proposed. This analysis will be needed when a specific development proposal is brought forward.

8. ***Crash Information.*** The TIA prepared in support of a specific development proposal will require information on crashes from the preceding three years.

9. ***Pedestrian and Bicycle Facilities.*** When a specific development proposal is presented, the discussion of pedestrian and bicycle facilities will need to be expanded.

10. ***Site Plan and Access.*** The basic concept presented by the applicant clearly indicates his intent to extend Meyers Road east of Beavercreek Road through his site. More details on access and circulation will be required in the site plan for a specific development

11. ***Intersection Spacing.*** Intersection spacing along Meyers Road to the east of Beavercreek Road will need to be addressed with a specific development proposal.

12. ***Sight Distance.*** Site distance is appropriately addressed as part of a specific development proposal. .

13. ***Consistency with the TSP.*** The planned extension of Meyers Road east of Beavercreek Road is consistent with the TSP and Beavercreek Road Concept Plan. Details on frontage improvements will need to be addressed as part of a specific development proposal.

14. ***Conclusions and Recommendations.*** The engineer concludes that the system can accommodate the proposed rezoning with minor mitigation measures. The inclusion of an exclusive right-turn lane on the westbound approach of Meyers Road at Highway 213 improves the intersection's performance to better than that predicted for the "no rezoning" scenario. He further concludes that widening of Highway 213 to a five-lane section throughout the corridor will substantially improve the corridor performance and allow ODOT mobility standards to be met. Part of this is being accomplished incrementally through frontage improvements.

Conclusion and Recommendations

I find the TPRA meets City requirements. The TPRA indicates that development will cause modest increases in traffic. At most locations operational standards will be met in year 2017. The system is expected to be able to accommodate the increase with significant impacts at one or two locations.

The key location is Highway 213/Meyers Road. Meyers Road between Highway 213 and Beavercreek Road is included in the City's TSP. As a new road in a new corridor, its implementation is more dependent on development than an already-existing facility that needs to be upgraded. Since adoption of the TSP, the easterly segment of Meyers Road has been constructed and a condition of approval placed on the Clackamas Community College makes it highly likely that the westerly portion will be constructed within the 16-year planning horizon assessed for the proposed rezoning. The central segment is somewhat more dependent on development. Since the traffic forecasts for 2027 are predicated on considerable regional development, it seems highly likely that both the development assumed in the College's Master Plan and the development of the privately held parcels in the central segment will occur by 2027. It seems inconsistent to assume traffic from the College and private development will occur without construction of the associated infrastructure. I think it is reasonable to assume the "with Meyers Road" scenario is the appropriate one to be used for assessing the rezoning request.

Based on the assumption that Meyers Road is complete from Highway 213 to Beavercreek Road, the question is whether reasonable mitigation can be implemented to offset a "significant" impact at the intersection of Highway 213/Meyers Road. I think the applicant has demonstrated that mitigation is readily available to offset the impact and that the mitigation is rather modest in nature. The addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 is shown to substantially improve the performance of the intersection. Though a right-turn lane is not specifically identified in the TSP at this location, the addition of a right-turn lane where a collector or

minor arterial intersects a major highway is a fairly common feature. I would view it as a Transportation System Management measure that is supported by policies in the TSP, Oregon Highway Plan and Metro's RTP. At this particular location, the College's plans for development place no significant constraints on a modest expansion of right-of-way for Meyers Road in this quadrant. Adding a right-turn lane in connection with the construction of Meyers Road would have a rather modest cost.

The engineer also points out that increasing Highway 213 to a five-lane section is being done incrementally. Adding an exclusive right-turn lane on northbound Highway 213 at Meyers Road would be another incremental step in improving the corridor and it would be consistent with a longer five-lane corridor.

I conclude that the applicant has demonstrated that the system can, with modest mitigation, accommodate the proposed rezoning. Conditions of approval could include measures that cause the developer to participate in proportion to his incremental impact if such are not already covered as part of his Systems Development Charges.

As indicated above, certain elements required in a TIA will need to be addressed in connection with a specific development proposal.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,

John Replinger

John Replinger, PE
Principal

Oregon City\2010\ZC10-01.docx

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209
Telephone (503)731-8200
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Oregon
Theodore R. Kulongoski, Governor

August 17, 2010

File code: PLA9-2B-OR213
ODOT Case No:3663

Peter Walter, City Planner
Planning Department
City of Oregon City
PO Box 3040
Oregon City, OR 97045-0304

RE: **PZ 10-01; ZC 10-01 Future Urban to MUC; and FU to MUC-1**

Dear Mr. Walter,

ODOT has reviewed the subject application to change the comprehensive plan designation from "County Future Urban" to "Mixed Use Corridor" and apply the MUC-1 zone for a 9.6 acre site located on Beavercreek Road. The site is located in the vicinity of OR 213. According to the 1999 Oregon Highway Plan (OHP), OR 213 is classified as a district highway/Expressway. According to the OHP the performance standard volume to capacity (v/c) ratio is 0.99. However, since the intersections on OR 213 are already projected to exceed the .99 v/c standard and transportation improvements are not anticipated within the planning horizon (2027) to bring performance to standard, the performance standard is to avoid further degradation. If the proposed zone change or comprehensive plan amendment increases the volume-to-capacity ratio further, it will significantly affect the facility (OHP Action 1F6).

For zone changes and comprehensive plan amendments, local governments must make findings that the proposed amendment complies with the TPR OAR 660-012-0060. There must be substantial evidence in the record to either make the finding of "no significant effect" on the transportation system, or, if there is a significant effect, assurance that the allowed land uses are consistent with the identified function, capacity, and performance standard of the transportation facility within the planning horizon (year 2027).

The Traffic Impact Analysis (TIA) provided a comparison analysis between existing and proposed zoning for the year 2027 both with and without the Meyers Rd extension. The analysis documents a significant effect at OR 213 intersections at the Molalla Ave and Meyers Rd without the Meyers Rd extension and does not identify mitigation. The analysis documents that under the existing zoning with the Meyers Rd extension the OR 213 intersection would operate at a 1.13 v/c ratio and with the proposed zoning the v/c ratio would increase to 1.17. The increase in v/c ratio by .04 would significantly affect the OR 213/Meyers Rd intersection.

The TIA identifies that with the addition of a westbound right turn lane at the OR 213/Meyers Rd intersection and the Meyers Rd extension that the intersection operation

improves to a 1.08 v/c ratio. ODOT recognizes that the westbound right turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Concept Plan area. Therefore, it is recommended that the applicant be conditioned to contribute their proportionate share of the right turn lane based on their traffic impact. Additional analysis may be needed to determine proportionate share in relationship to the broader Beavercreek Concept Plan area.

ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213:

1. The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027) *

2. The land use decision includes a condition requiring the applicant to contribute funding to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection.

Thank you for providing ODOT the opportunity to participate in this application completeness review. **Please send a copy of the Notice of the formal application to: ODOT Region 1 Planning, Development Review.**

If you have any questions regarding the traffic analysis please contact Avi Tayar at 503-731-8221. Otherwise, please feel free to contact me at 503.731.8206.

Sincerely,

Gail Curtis, AICP, Senior Planner

Attach: ODOT Beavercreek Road/Meyer Road Rezone TPR Analysis

c: Avi Tayar, ODOT Region 1 Traffic

* For evaluation of local plan amendments and zone changes, Section 660-12-0060 of the TPR requires that needed improvements either have committed funding, are in a financially constrained Metropolitan Planning Organization (MPO) transportation plan, or are "reasonably likely" to be provided by the end of the planning period in order for the capacity provided by the needed improvement to be considered "available" to the proposed amendment.

Oregon
Theodore R. Kulongoski, Governor

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Telephone (503) 731-8200
FAX (503) 731-8259

TO: Gail Curtis – Senior Planner
Region 1 Planning

FROM: Avi Tayar, P.E.
Development Review Team Leader
Region 1 Traffic

DATE: August 12, 2010

RE: Beavercreek Road/Meyer Road Rezone TPR Analysis
OR 213 (Cascade Hwy South)
Oregon City, Oregon

I have reviewed the Transportation Impact Analysis (TIA) for the proposed Comprehensive Plan and Zone Change for tax lot ZC10-01 located at 19896 Beavercreek Road in the city of Oregon City. The TIA is dated June 21, 2010 and was prepared by Chris Brehmer, PE of Kittelson & Associated, Inc. (KAI).

Introduction
The TIA is for a proposed Comprehensive Plan Amendment and Zone Change (CPA/ZC)) of tax lot ZC10-01 located east of Beavercreek Road and between S Loder Road and S Glen Oak Road. The property is included within the Beavercreek Road Concept Plan area as a future mixed-use center. The Beavercreek Road Concept Plan has not been approved to date. No specific development plan or site entitlements are proposed in conjunction with this zone change. The property is currently designated as Future Urban zoning. The proposal is a request to change the Comprehensive Plan map designation to City Mixed-Use Corridor (MUC-1) zoning. Oregon land use law requires that the Transportation Planning Rule (TPR) be met whenever a land use action requiring a change to existing zone designation is proposed which could have a significant effect on transportation facilities.

The site is in the vicinity of OR 213, Cascade Highway South. ODOT has jurisdiction of this State highway facility and an interest in assuring that the proposed zone change/comprehensive plan amendment is consistent with the identified function, capacity and performance standard of this facility. According to the 1999 Oregon Highway Plan (OHP), OR 213 is classified as a district highway/Expressway. The facility has three to five travel lanes with bicycle lanes and posted speed of 45 mph. According to the OHP the performance standard volume to capacity (v/c) ratio is 0.99. In situations where the highway facility is operating above the OHP mobility standard and transportation improvements are not anticipated within the planning horizon to bring performance to standard, the performance standard is to avoid further degradation. If

the proposed zone change or comprehensive plan amendment increases the volume-to-capacity ratio further, it will significantly affect the facility (OHP Action 1F6).

Existing Zoning Conditions (Future 2027 Horizon Period)
Traffic volumes for the future conditions with traffic generation from the reasonable worse case development under existing land use zoning were analyzed to 2027. The analysis results indicated that all analyzed intersections exceed ODOT mobility standards (0.99) in 2027.

Proposed Zoning Conditions w/o Meyers Rd Extension (Future 2027 Horizon Period)
Traffic volumes for the future conditions with traffic generation from the reasonable worse case development under the proposed land use zoning were analyzed to 2027. The analysis results indicated that all analyzed intersections continue to exceed ODOT mobility standards with a significant effect attributed to the proposed rezone was identified in the following intersections: OR 213 at Molalla Avenue and OR 213 at Meyers Road (increased v/c ratio increment of more than 0.01).

Proposed Zoning Conditions w/ Meyers Rd Extension and Potential Mitigation Measures (Future 2027 Horizon Period)

The TIA also analyzed the OR 213 intersections with the anticipated extension of Meyers Road by 2027 between OR 213 and its existing terminus to the east at High School Avenue. Oregon City has yet to determine if this improvement is "Reasonably Likely Transportation Improvement". Under the existing zoning with the Meyers Rd extension, the OR 213/Meyers Rd intersection is forecast to operate with a v/c ratio of 1.13. With the proposed zoning with the Meyers Rd extension, the OR 213/Meyers Rd intersection is forecast to operate with a v/c ratio of 1.17. The increase in v/c ratio by .04 would significantly effect the OR 213/Meyers Rd intersection. The analysis results indicated that all analyzed intersections continue to exceed ODOT mobility standards with a significant effect attributed to the proposed rezone was identified in the OR 213 at Meyers Road intersection.

In order mitigate the affect of the zone change/comprehensive plan amendment on the transportation facility; the TIA suggests that minor transportation enhancements to the Meyers Road intersection will reduce the v/c ratio to below existing zoning level. The TIA proposes mitigating the significant effect of the rezoning by installing a separate westbound right-turn lane along Meyers Road at the westbound approach intersection with OR 213. The addition of a westbound right-turn lane will improve operation of the intersection and reduce the v/c ratio to below the existing zoning (v/c for existing zoning of 1.13 to proposed mitigation v/c ratio of 1.08).

Conclusion
The proposed zone change and comprehensive plan amendment will have significant effect on the highway mobility and will further degrade the State facility. The TIA recommends the extension of Meyers Rd with the addition of a westbound right turn lane at the OR 213 intersection as mitigation. ODOT has determined that with these mitigations measures constructed within the planning horizon of 2027 that there would not be a significant effect on OR 213. However, in order to rely upon the Meyers Rd extension Oregon City must make a determination that the extension is "reasonably likely" to be constructed within the planning horizon..

Recommendations
The findings section of the TIA lists improvement to the road system to mitigate the impact of the zone change. The mitigated improvement includes extending Meyers Road from OR 213 to its existing terminus (the new westbound approach to OR 213) with a separate left-turn, through, and right-turn lanes. If the City finds the Meyers extension to be "reasonably likely", then it is recommended that the City requires the applicant to contribute funds to the City to pay for the right-turn lane improvement.

If the City doesn't determine the improvement to be reasonably likely, the applicant should be required to address the significant effect due to the proposed zone change. Without any improvements to the study intersections along OR 213, the proposed zone change will have a significant effect on the highway at more than one intersection as indicated above. Therefore, the applicant proposed zone change should not be allowed without other proposed mitigated measures.

If there are any questions regarding the contents of this memorandum, please contact me at (503) 731-8221.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 16, 2010

IN-HOUSE DISTRIBUTION

- ☐ Building Official
- ☑ Development Services Manager
- ☐ Public Works Operations
- ☑ City Engineer / Public Works Director
- ☐ GIS
- ☐ Parks Manager
- ☐ Addressing
- ☐ Police
- ☑ Traffic Engineer

MAIL-OUT DISTRIBUTION

- ☑ CICC
- ☑ Neighborhood Association Chair (CAUFIELD)
- ☑ Neighborhood Association Land Use Chair
- ☑ Clackamas County - Transportation
- ☑ Clackamas County - Planning
- ☐ Fire Chief
- ☑ ODOT – Division Review
- ☑ School District# 62
- ☐ Tri-Met
- ☐ Metro - Ray Valone
- ☐ Oregon City Postmaster
- ☑ DLCD (sent w/ DLCD Notice)

COMMENTS DUE BY:	**August 16th, 2010**
HEARING DATE:	**August 30th, 2010 – Planning Commission** **September 15th, 2010 – CC – City Commission**
HEARING BODY:	__Staff Review; _**XX**__PC; ___ _HRB; __**XX**_CC
FILE # & TYPE:	PZ 10-01: Comprehensive Plan Amendment ZC 10-1: Zone Change
PLANNER:	Pete Walter, AICP, Associate Planner
APPLICANT:	Theta, LLC
REQUEST:	The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
ZONING:	Future Urban
LOCATION:	19896 Beavercreek Road Clackamas County Map 3-2E-10C, Tax Lot 800

RECEIVED
CITY OF OREGON CITY
2010 AUG 13 PM 2:23

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and will insure prompt consideration of your recommendations. Please check the appropriate spaces below.

___ The proposal does not conflict with our interests.
___ The proposal conflicts with our interests for the reasons attached.
X The proposal would not conflict our interests if the changes noted below are included.

SEE Attached

Signed Mike Mermuys

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Caufield Creek Neighborhood Association
Response to the zone change request
PZ 10-01
19896 Beavercreek Road
Oregon City

The Caufield Creek Neighborhood Association realizes that a zoning change at 19896 Beavercreek Road would have to be accomplished in order to develop and/or sell the property. However, the umbrella classification listed under the MUC and MUC-1 designations are too broad. We would like to see the list narrowed and more focused.

We do not want Beavercreek Road to be another Molalla Avenue, where the numerous strip malls have a myriad of restaurants, storage lots, bars, gas stations, convenience stores, auto repair businesses, car part stores, second hand stores, etc. We would like to see some architecture/landscaping standard establish so that the development does not deter from the architecture award winning achievements of the Oregon City High School. The Caufield Neighborhood Association would like to have some input the types of businesses and/or residences that would have a nice appearance and benefit the community.

Mike Mermelstein

Clackamas County Official Records
Sherry Hall, County Clerk

2008-022108

$56.00

01200414200800221080060066

03/28/2008 08:44:20 AM

D-ANXCON Cnt=1 Stn=9 DIANNAW
$30.00 $16.00 $10.00

AFTER RECORDING RETURN TO:

City Recorder
City of Oregon City
P. O. Box 3040
Oregon City, Oregon 97045-0304

Map No.: 3-2E-10C
Tax Lot No.: 800
Planning No.: AN 07-02

Grantor(s): MARYLWOOD LLC

ANNEXATION AGREEMENT

This Annexation Agreement ("Agreement") is entered into by and between MARYLWOOD LLC ("Petitioner") and the CITY OF OREGON CITY ("City"), an Oregon municipal corporation on this 19 day of December 2007.

RECITALS

WHEREAS, Petitioner is the record owner of TL 800 (Sec. 10, Twp. 3S, Range 2E, W.M.), approximately 9.7 acres in size, with a street address of 19896 Beavercreek Road, Oregon City, OR 97045 (the "Property"), located in unincorporated Clackamas County and within the City's Urban Growth Boundary (UGB); and described as follows, to wit:

See attached EXHIBIT "A" Legal description and
attached EXHIBIT "B" Sketch for Legal Description; and

WHEREAS, Petitioner has submitted an application to City to annex the Property into the City's corporate limits (City File No. AN 07-02), and the City has accepted and is considering that application; and

WHEREAS, one factor in the City's consideration of Planning File No. AN 07-02 annexation application is whether the City has the capacity or financial resources to provide necessary public services to the Property, most notably law enforcement; and

WHEREAS, City's ability to provide adequate levels of law enforcement to serve the Property is largely dependant upon the availability of funding to pay the cost of these urban services; and

WHEREAS Petitioner recognizes that it is incumbent upon new development to pay the cost of providing urban services and facilities, at sufficient levels, to serve new development, and both parties desire to identify a means by which Petitioner funds the cost of providing law enforcement to the Property if the City consents to annex the Property.

NOW THEREFORE, based on the foregoing Recitals, the mutual covenants provided for in this Agreement, and for valuable consideration, receipt of which is hereby acknowledged, the parties agree as follows:

1. The City agrees to review, process and consider Planning File No. AN 07-02 annexation application in the normal course and apply the customary criteria in that process. Execution of this Agreement by the City shall not be construed in any way to be a promise or guarantee that the annexation, or any other land use approval, will be granted by the City.

2. Petitioner agrees that, in the event that the City gives final approval to annex the Property, Petitioner will pay to City amount specified by attached police funding fee schedule A permitted by City to be constructed on the Property to be used for the provision of law enforcement services. The amount provided for in this paragraph shall be due and payable by Petitioner to the City at the time City issues a building permit for each new dwelling on the Property.

3. The City agrees to use any amount paid to it by Petitioner for law enforcement services as provided in Paragraph 2. The funds provided pursuant to this Agreement are intended as a supplement to the City's current funding of its law enforcement and are not intended to serve as replacement for those funds.

4. The parties agree that this Agreement is not, is not intended to be and shall not be construed as, a "development agreement" under ORS 94.504 to 94.528. In the event any form of legal challenge is brought by any entity not a party to this Agreement challenging the Agreement, the City is under no obligation whatsoever to defend the Agreement.

5. Term, extension and modification: If the Property is not annexed to the City by June 30, 2008, this Agreement shall expire on July 1, 2008 and be of no further force or effect. If the Property is annexed to the City by June 30, 2008, the Agreement shall be valid, binding and enforceable until July 1, 2018, after which it shall expire and be of no further force or effect. This Agreement may be extended or modified at any time prior to expiration upon the mutual written consent of the parties.

6. Agreement runs with the land. The rights and obligations set forth in this Agreement shall be recorded with the title to the Property, and, except as provided in Paragraph 5, shall run with the land and be binding upon the parties to this Agreement, their heirs, successors and assigns.

7. No third party beneficiaries. This Agreement is strictly and solely between the parties signed below, and it shall not create any obligation on the part of either party to perform or pay anything to or on behalf of anyone not a party to this Agreement. This Agreement does not create any rights in favor of or for any person or entity that is not a party to this Agreement.

IT IS SO AGREED:

The City of Oregon City:

Alice Norris

Alice Norris
print name

Date: 03-19-08

MARYLWOOD LLC:

Philip M Gentemann Member
Print Name:

Date: December 19, 2007

Philip M. Gentemann
Print Name:

Date: December 19, 2007

CITY OF OREGON CITY

////

////

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19th day of March 2008 by Alice Norris, the Mayor of Oregon City, who swore or affirmed that he/she was authorized to execute the foregoing Annexation Agreement on behalf of the City of Oregon City.

OFFICIAL SEAL
NANCY S. IDE
NOTARY PUBLIC-OREGON
COMMISSION NO. 400033
MY COMMISSION EXPIRES DEC. 1, 2009

Nancy S. Ide
Notary Public for Oregon,
My Commission Expires 12-01-09

MARYLWOOD LLC

OFFICIAL SEAL
BILL MC CORKLE
NOTARY PUBLIC-OREGON
COMMISSION NO. A405812
MY COMMISSION EXPIRES JULY 6, 2010

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19 day of December 2007 by Philip M. Gentemann.

Notary Public for Oregon,
My Commission Expires 7-6-2010

EXHIBIT "A"

LEGAL DESCRIPTION

A tract of land located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89°36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40°37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89°35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, containing 27.00 acres, more or less, and being a part of the tract of land described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

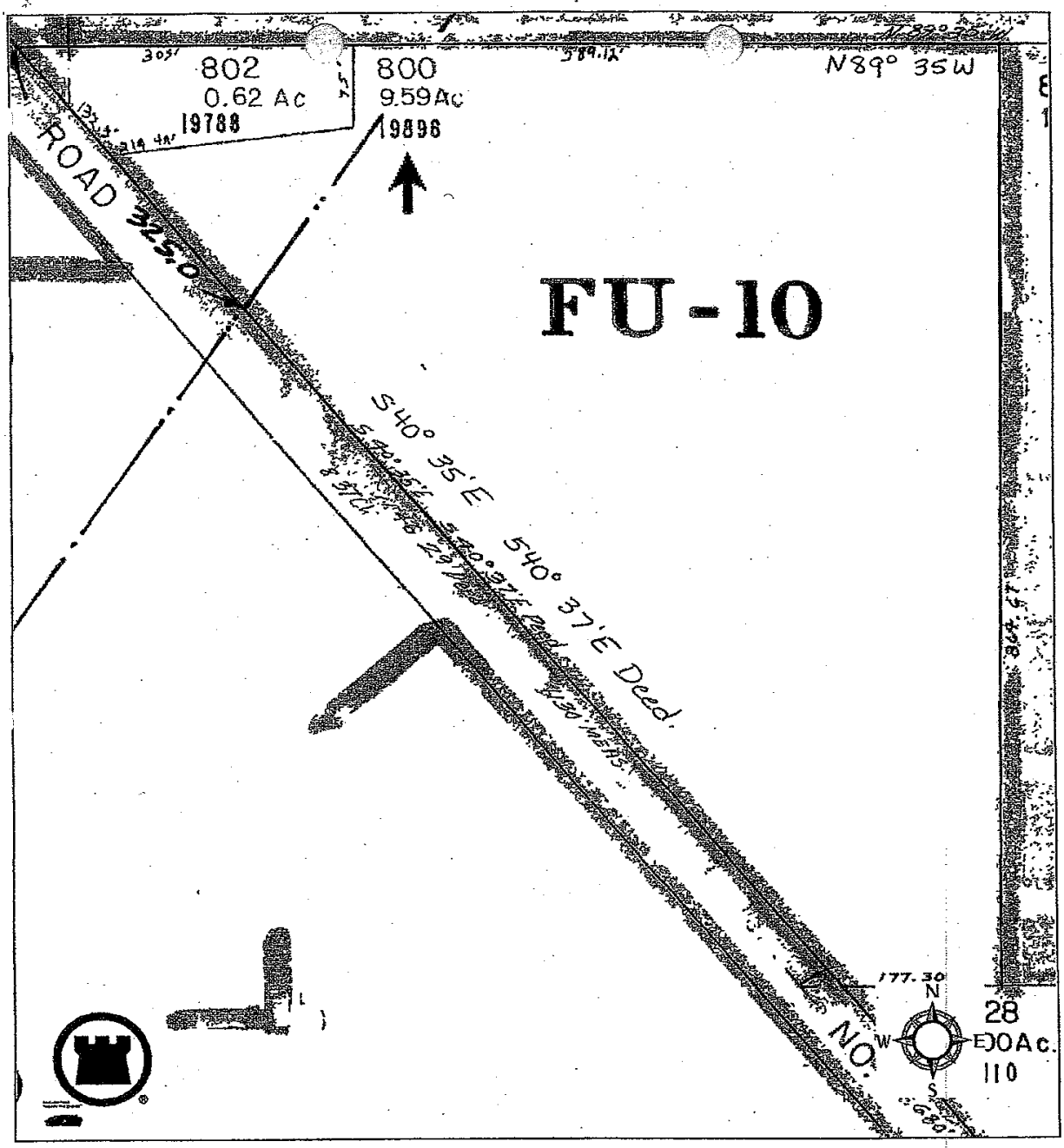
EXCEPTING THEREFROM a tract of land in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract of land conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89°35' West 3.76 feet; thence South 89°35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83°52'30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40°35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract of land located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0°0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89°35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

4



CHICAGO TITLE

"This plat is for your aid in locating your land with reference to streets and other parcels.
While this plat is believed to be correct, the company assumes no liability for any loss occurring by reason of reliance thereon."

Map No. 32E10C 00800

CHICAGO TITLE INSURANCE COMPANY
10135 S.E. SUNNYSIDE ROAD Suite 200
CLACKAMAS, OREGON 97015

Exhibit "B"
5

Schedule A
Police Funding Fees
AN 07-0002

LAND USE	SERVICE RATING	FEE
Industrial / Employment	Low	$0.10 / sq. ft.
Commercial / Office	Low	$0.10 / sq. ft.
Urgent Care Clinics, Senior Living Facilities, Apartment Buildings, Hotels	High	$0.20 / sq. ft.
Residential	High	$3,500 / unit

(6)

- About Oregon City
  - Historic Information
  - Latest News
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    - Elevator Hours
    - Elevator Updates
  - Neighborhoods
  - Our Community
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    - Population
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    - New City Hall
    - Riverfront Boulevard
  - Schools
  - Trailnews
  - Video Gallery
  - Visitor Information
  - Community Grants
  - Main Street Oregon City
  - Trolley Rental
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  - Code Enforcement
  - Community Development
  - Finance
  - Fire District #1
  - GIS / Maps
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  - Municipal Court
  - Parks & Recreation
  - Pioneer Center
  - Planning
  - Police
  - Public Works
  - Swimming Pool
  - Utility Billing
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  - Mayor
  - Boards and Commissions
  - City Commission
  - City Manager

- City Recorder
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  - Activity Registration
  - Agendas/Minutes/Videos
  - Building Permits
  - Citizen Requests
  - Inspection Requests
  - List your firm - bids
  - Move In Form
  - Move Out Form
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  - OCWebMaps
  - Proposal Results
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  - Parking Citations

- About
  - Contact Public Works
- PW Director's Welcome
- Faq's
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  - Development Services
  - Operations
    - Stormwater Division
      - NPDES Documents
    - Street Division
    - Wastewater Division
    - Water Division
      - Cross Connections
- Documents
  - Design Standards
  - Development
  - Master Plans
    - Parks and Recreation
      - Parks and Recreation Master Plan
      - Trails Master Plan
    - Planning
      - Beavercreek Road Concept Plan
      - Downtown Community Plan
      - Molalla Avenue Boulevard and Bikeway Improvements Plan
      - Park Place Concept Plan
      - Urban Renewal Plan for Downtown
    - Public Works
      - Sanitary Sewer Master Plan
      - Urban Renewal Plan
      - Water Master Plan

        - Transportation
            - Beavercreek Road Access Management Plan
            - Holcomb Blvd Pedestrian Concept Plan
            - McLoughlin Boulevard Enhancement Plan
            - Transportation System Plan
            - Transportation System Plan Amendment
        - Right-of-Way (ROW) Street Permits
        - System Development Charges (SDC)
        - Traffic Control
            - Speed Bump Packet (Policies and Application)
            - Stop Sign Brochure
        - Traffic Counts and Studies
        - Water Quality Reports
- Bid Info
    - Bid and Proposal Results
        - RFQ for Engineering Services
    - Contractor Listing Info
    - Solicitations
- Construction Projects
    - 2009 Water System Improvements Project
    - McLoughlin Promenade Restoration
    - Warner Milne Road: Beavercreek to Molalla Avenue
    - Downtown Circulation Study
    - Holcomb Blvd Pedestrian Improvement Project
        - Frederick Street to OC Baptist Church
        - Holcomb Elementary to Trailview Estates
        - Trailview Estates to Barlow Crest
    - Hwy 213 Widening
    - McLoughlin Boulevard Enhancement Project Phase I
    - Oregon City/West Linn Bridge Reconstruction
    - Other projects
    - 10th Street/Singer Hill Road UPRR Crossing Improvements
    - 2010 Oregon City Slurry Seal Project
    - 2010 Oregon City Small Works Projects
    - 2010 Pavement Rehabilitation Project
    - 2010 Waterline Improvements Project
    - 8th Street Waterline Improvements
    - Center Street Rehabilitation
    - Glen Oak Road Storm Pond Repairs
    - Hwy 213 - Jughandle
    - Main Street Storm Sewer Improvement Project
    - Railroad Crossing Safety Improvements (10th Street Crossing)

Home
Oregon City Public Works Department

Oregon City Public Works Department

- publicworks

Transportation SDC Resolution 09-02

This is Resolution 09-02 creating the latest Transportation SDC rates for Vehicles and Bike/Ped rates.

Related Information

Transportation SDC Resolution 09-02

- Printer-friendly version
- Send to friend
- PDF version

Search the Site

Go

Public Works Info

- Address:
- 625 Center Street
- Oregon City, OR 97045

- Phone:
- (503)657-0891

- Fax:
- (503)657-7892

- Office Hours:
- M-F 8AM to 5PM

- Operations Address:
- 122 S. Center Street
- Oregon City, OR 97045

- Operations Phone:
- (503)657-8241

- Operations Fax:
- (503)650-9590

- Contacts:
- View

Latest News

- Warner-Milne Road Project Schedule Update

- Bid and Proposal Results
- Construction Update
- Water Quality Reports
- Jughandle Project Open House

Upcoming Events

- Transportation Advisory Committee
  Tue, Sep 21st 6:00pm
- Transportation Advisory Committee
  Tue, Oct 19th 6:00pm
- Transportation Advisory Committee
  Tue, Nov 16th 6:00pm

View City Calendar

Department Services

- Construction Projects
- Contractor Listing Info
- Development Services
- Development Services (Engineering) Fees
- Documents, Forms, & Permits

more

Department Documents

- 2008 Traffic Studies
- 2009 Transportation SDC Report
- 2010 TAC Agenda Packets
- 301: Standard Manhole for Less Than 27" Pipe
- 302: Shallow Manhole for Less Than 27" Pipe

more

Popular Links

- Calendar
- Documents
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- Meetings
- News
- OCWebMaps
- Services
- Construction

- About Oregon City

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- Records Online
- Report a Problem
- Utility Payments
- Parking Citations

Site Information

- Login
- Sitemap

City of Oregon City | 625 Center Street | Oregon City, OR 97045 | (503)657-0891 | M-F 8AM-5PM
+alcheme creativeSite designed by aHa Consulting and

Phil Gentemann

From: Raymond Valone [valoner@metro.dst.or.us]
Sent: Tuesday, May 01, 2007 8:13 AM
To: phil@centurionhomes.net
Subject: UGB Map

Attachments: taxlot_in_ugb.pdf

TIM O'BRIEN –

taxlot_in_ugb.pdf
(275 KB)

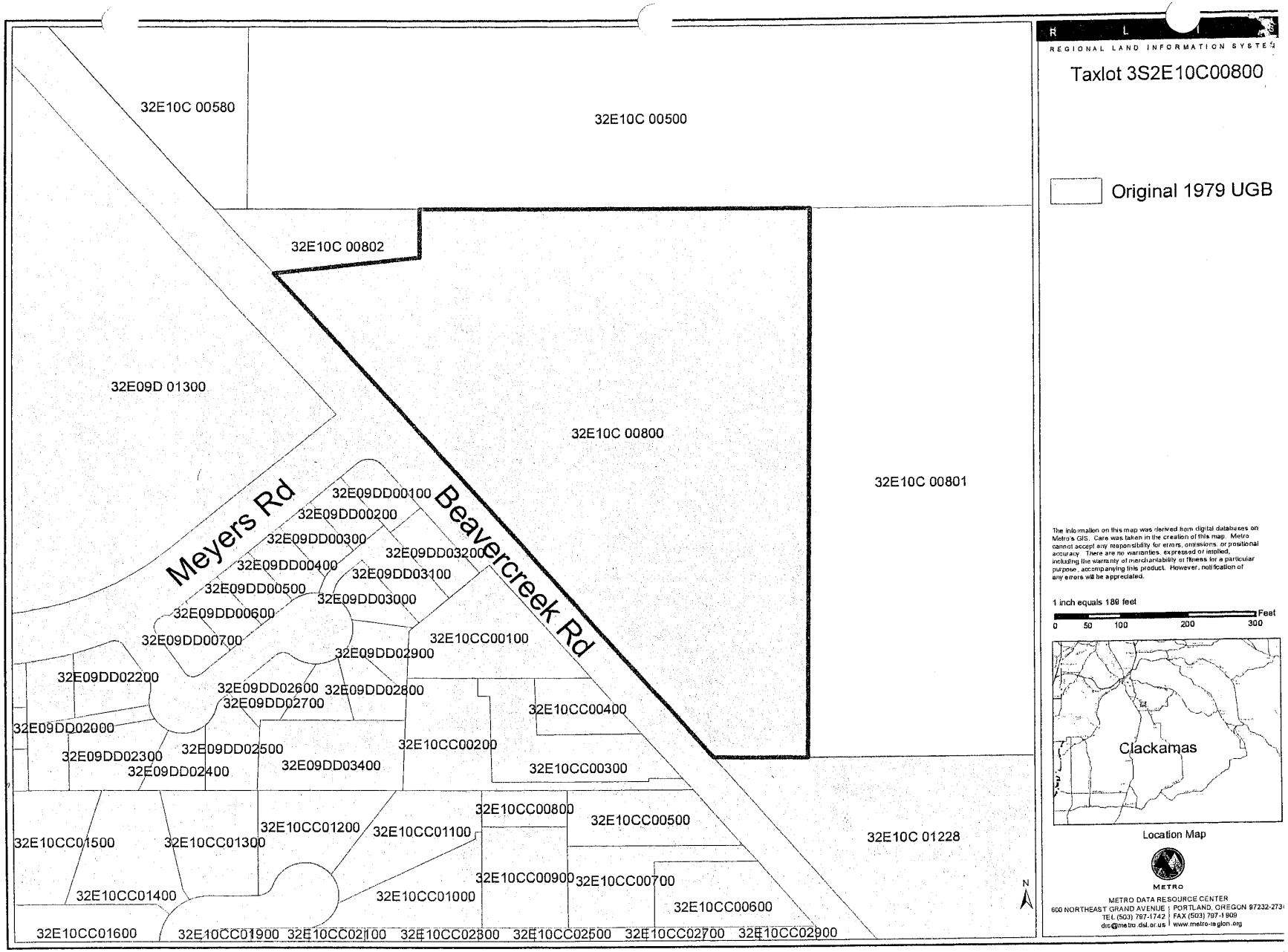
Phil,
The attached map from our Data Resource Center shows the original UGB area along Beavercreek Road, including TL 800 that asked me about, as being within the UGB since 1979. I hope this helps.

Ray Valone
Principal Planner
Metro
600 NE Grand Avenue
Portland, Oregon 97232
Ph 503-797-1808
Fx 503-797-1930
E-mail: valoner@metro.dst.or.us
Web: http://www.metro-region.org/

PER RAY VALONE
NOT SUBJECT TO TITLE 11
NO CONCEPT PLAN REQUIREMENT

TL 800 SEC 10 TW 3S R2E

19896 Beavercreek Rd


32E10C 00580
32E10C 00500
32E10C 00802
32E09D 01300
32E10C 00800
32E10C 00801
Meyers Rd
Beavercreek Rd
32E09DD00100
32E09DD00200
32E09DD00300
32E09DD03200
32E09DD00400
32E09DD03100
32E09DD00500
32E09DD03000
32E09DD00600
32E09DD00700
32E10CC00100
32E09DD02900
32E09DD02200
32E09DD02600
32E09DD02800
32E09DD02700
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32E09DD02000
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32E09DD03400
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32E10CC01100
32E10CC01500
32E10CC01300
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32E10CC00700
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32E10CC01000
32E10CC00600
32E10CC01600
32E10CC01900
32E10CC02100
32E10CC02300
32E10CC02500
32E10CC02700
32E10CC02900
N
R L I S
REGIONAL LAND INFORMATION SYSTEM
Taxlot 3S2E10C00800
Original 1979 UGB
The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.
1 inch equals 100 feet
Feet
0 50 100 200 300
Clackamas
Location Map
METRO
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org
Project Date: Apr 30, 2007 Plot date: Apr 30, 2007 J:\rail\proj\tmp\taxlot_in_ugb.mxd
Please recycle with mixed paper

I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF.
Rebecca V. Shoemaker, Archivist
Clerk of the Metro Council

BEFORE THE COUNCIL OF THE METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF ADOPTING AN URBAN GROWTH BOUNDARY FOR THE REGION	)	ORDINANCE NO. 79-77
	)	Introduced by the Planning & Development Committee

Section 1: The Council finds that:

(a) The Metropolitan Service District is required by Oregon Laws 1979, chapter 402 to prepare and adopt an urban growth boundary for the District consistent with applicable statewide planning goals;

(b) The LCDC, upon acknowledgment review pursuant to ORS Chapter 197, has found that additional findings to support the urban growth boundary adopted in December, 1978, by the Columbia Region Association of Governments are required to merit acknowledgment;

(c) Sufficient evidence exists to support the boundary adopted by CRAG; and

(d) It has been determined by LCDC that it is necessary for the District to establish policies for conversion of urbanizable land to urban use beyond the requirements of Statewide Goal No. 14.

Section 2:

(a) The Metropolitan Service District Urban Growth Boundary (UGB), as indicated and described on the map attached hereto as Attachment A and by this reference incorporated herein, is adopted.

(b) Attachment A is a reduced copy of the original map of the UGB, dated 11/8/79, which original is on file at District offices. Where conflicts may exist between the original and a copy

of the UGB, the original shall control.

Section 3:

The document entitled "Urban Growth Boundary Findings," dated November 1979, a copy of which is attached hereto and by this reference incorporated herein, is hereby adopted as the Findings in support of the UGB adopted by Section 2 of this Ordinance.

Section 4:

The record of the adoption of this Ordinance and its attachments is declared to include:

(a) All evidence, testimony and other information submitted to or generated by CRAG in connection with its adoption and amendment of the CRAG Regional UGB in December, 1978, (CRAG Order No. 78-35) and supporting Findings in November, 1978, (CRAG Order No. 78-22).

(b) All evidence, testimony and other information submitted to the LCDC by the District during its UGB acknowledgment proceedings of June, 1979.

(c) All evidence, testimony and other information submitted to or generated by the District relating to this proceeding.

Section 5:

Pursuant to the 1977 Oregon Laws, chapter 665, Section 25, this ordinance supersedes CRAG Order No. 78-22 (November 16, 1978), CRAG Order No. 78-35 (December 21, 1978), and the documents adopted therein, which orders and documents are no longer of any force or effect. Previous orders of CRAG which were superseded by Order No. 78-22 and Order No. 78-35 are not revived except to the extent that

the records and findings supporting such orders have been readopted by Section 3 and Section 4 of this ordinance.

ADOPTED by the Council of the Metropolitan Service District this 8th day of November, 1979.

Presiding Officer

Attest:

Clerk of the Council

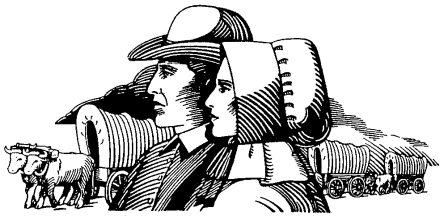
AJ/gl
5590A
0065A

METROPOLITAN
SERVICE DISTRICT
URBAN
GROWTH
BOUNDARY
NOVEMBER 8, 1979
AMENDMENTS
16X
April 29, 2003

CITY OF OREGON CITY

Land Use Decision

320 WARNER MILNE ROAD OREGON CITY, OREGON 97045
TEL (503) 657-0891 FAX (503) 722-3880



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NOTICE OF TYPE III LAND USE DECISION
File Numbers: CP 07-01
DATE OF MAILING OF THE DECISION: June 24, 2008

APPLICANT/OWNER	**Clackamas Community College – Kirk Pearson** 19600 Molalla Avenue Oregon City, OR 97045
APPLICANT'S REPRESENTATIVES	**Winterbrook Planning – Ben Schonberger** 310 SW Fourth Avenue Portland, OR 97204
REQUEST:	The applicant is requesting the approval of a Concept Development Master Plan for future college development through 2015.
LOCATION:	19600 Molalla Avenue, Oregon City, Oregon 97045

DECISION: On June 23, 2008, after reviewing all of the evidence in the record and considering all of the arguments made by the applicant, opponents and interested parties, the Planning Commission concluded by a 4-0 vote that the Concept Master Plan would meet, or could meet through conditions of approval, all of the requirements of each applicable section of the Oregon City Municipal Code. Therefore, the Planning Commission unanimously **APPROVES WITH CONDITIONS** the application.

PROCESS: Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. Applications evaluated through this process include conditional use permits, preliminary planned unit development plans, variances, code interpretations, similar use determinations and those rezonings upon annexation under Section 17.06.050 for which discretion is provided. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. Notice of appeal of any Type II, Type III or IV decision must be received in writing by the planning division within ten calendar days from the date notice of the challenged decision is provided to those entitled to notice. Late filing of any appeal shall be deemed a jurisdictional defect and will result in the automatic rejection of any appeal so filed. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

The application, decision, and supporting documents are available for inspection at the Oregon City Planning Division located at 320 Warner-Milne Road, Oregon City, OR 97045, (503) 657-0891, between the hours of 8am and 1pm. Copies of these documents are available (for a fee) upon request.

CONDITIONS OF APPROVAL
Planning File: CP 07-01
Clackamas Community College Master Plan – Phases 1 and 2
Notice of Decision Mailed: June 24, 2008

1. As part of any future Detailed Development Plan, Clackamas Community College shall provide a Traffic Impact Analysis that demonstrates compliance with the Concept Mater Plan. Clackamas Community College, Oregon City, Oregon Department of Transportation and Clackamas County, shall mutually agree to the scope of the Traffic Impact Analysis as appropriate.

2. As part of any Detailed Development Plan, Oregon City and Clackamas Community College shall determine a fee that addresses Clackamas Community College's proportional share of the necessary transportation system improvements. This fee shall be based on the anticipated impacts of the proposed development on the transportation system and the charges will be assessed prior to the issuance of a building permit.

3. The Oregon City level-of-service standards will be used to determine the adequacy of the transportation system, appropriate mitigation measures and proportional share calculations. Oregon Department of Transportation and Clackamas County transportation standards will be utilized when applicable to determine the adequacy of the transportation system.

4. A Detailed Development Plan for Phase 2 development shall include the dedication and construction of Meyers Road from Highway 213 to the eastern property line of the campus and the local street connection to 19842 Molalla Avenue (Clackamas County Map 3-2E-9C, tax lot 700), which is located directly south of the campus. If the Detailed Development Plan for Phase 2 is approved, Clackamas Community College shall dedicate the Meyers Road and local street right-of-way prior to the issuance of a building permit for Phase 2. The local street connection shall be constructed when Meyers Road is constructed. Until the ROW is dedicated, the alignment of the roads will not be guaranteed as it relates to connections to adjacent parcels to the east and south.

5. Clackamas Community College shall mitigate any site-related transportation impacts identified through the Detailed Development Plan Traffic Impact Analysis at the site driveway on Beavercreek Road, to the intersection performance standards established by the City of Oregon City.

6. Parking lot landscaping shall be upgraded concurrently with the approved Concept Master Plan development. A mitigation plan for upgrading the non-conforming parking lots shall be submitted by the applicant with each phase of development. The non-conforming parking areas shall be upgraded proportionally to the percent of new campus building square-footage being constructed (i.e. if 30% of the approved building square-footage is being constructed, then 30% of the non-conforming parking areas must be upgraded).

7. The Master Plan shall be updated, as necessary, to reflect the changes that will be made by addressing the 11 City comments on the Water, Sanitary Sewer, and Stormwater systems report. (Concept Development Plan Review, dated 8/31/07: Exhibit 10).

8. The applicant shall update the Concept Master Plan narrative, mitigation standards and thresholds to reflect the conditions of approval that have been approved and attached to this decision.

9. The applicant shall either leave the level-of-service (LOS) standards in the Site Plan and Design Review regulations (17.62.050.A.16) or the they shall be incorporated into the Clackamas Community College Transportation Plan as a reference to the LOS the City requires development to meet and as the standards that were utilized in the review of the master plan to determine adequacy of the transportation system. This standard will be utilized in determining appropriate mitigation measures and in the calculation of the proportional share required to be paid by the applicant for transportation infrastructure deficiencies.

Beavercreek Road Concept Plan Concurrence

Please Note: The following findings regarding concurrence with the Beavercreek Road Concept Plan are informational only and are not approval criteria that must be satisfied in order to approve this the Zone Change and Comprehensive Plan request.

Goal 1 Complete and Sustainable Community

Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Objective 1.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the proposed MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 1.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. The subject property is buffers the rural lands on the east, south and north by land within the current UBG. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 1.4
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone permitted uses encourage neighborhood oriented and scaled mixed-use centers by providing employment and housing for local residents of all ages and incomes. Retail, professional and office uses, plus residential uses provide jobs and housing in a neighborhood-oriented environment.

Objective 1.6
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 1.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 2 Model of Sustainable Design
Be a model of sustainable design, development practices, planning, and innovative thinking.

Finding: The applicant indicates that the proposed zone change to MUC-1 does foster sustainability by the mixed and transit supportive land uses. Innovative sustainable stormwater management and building supporting LEED certifications can be used when development occurs.

Objective 2.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that could potentially utilize the surrounding City and rural economies.

Objective 2.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands..

Objective 2.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 2.4
Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.

Finding: The applicant indicates that the proposed zone change to MUC-1 mixed uses will encourage environmentally responsible developments that enhance livability of neighborhoods and protect and enhance the natural environment.

Goal 3 Green Jobs
Attract "green" jobs that pay a living wage.
Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include businesses with "green jobs" that pay a living wage.

Objective 3.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone has a long list of uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide

variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

The undeveloped land that surrounds the subject property was brought into the UGB in *2002/2004* and annexed into the City of Oregon City in 2008 and buffers the subject property from the rural areas. This area is part of the Beavercreek Concept Plan whose master vision is a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 3.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially provide goods, services and housing for local workers and residents of all ages and incomes.

Objective 3.4
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone has a long list of uses that include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.5
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 5 - Natural Beauty
Incorporate the area's natural beauty into an ecologically compatible built environment.

Finding: The applicant indicates that future development will incorporate sustainable stormwater plans using best management practices will enhance the natural beauty and provide ecologically compatibility. The MUC-1 zone allows for a variety of uses that can be built in an ecologically compatible manner and incorporate the area's natural beauty. Currently the Beavercreek Concept Plan indicates a portion of a trail to cross the subject property which could be incorporated nicely into a development project.

Objective 5.1
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.
Finding: The applicant indicates that the future development plan for this property will ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. Pedestrian design considerations would be examined in detail at time of submittal of any development application.

Objective 5.2
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 5.3
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands..

Objective 5.4
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal.

Goal 6 - Multi-modal Transportation
Provide multi-modal transportation links (such as bus routes, trails, bikeways, etc.) that are connected within the site as well as to the surrounding areas.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal.

Objective 6.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Finding: The applicant indicates that MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. This property will provide public connectivity routes for bicycles and

pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the area and to the communities beyond.

Objective 6.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural storm water systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Finding: The applicant indicates that future development plans will include a sustainable stormwater management plan that will provide for water quality and quantity in the conveyance systems either open or closed to existing downstream areas. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Goal 7 - Safety Along Beavercreek Road
Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. The existing intersection of Meyers and Beavercreek is a signalized crossing that will control speeds and access. The desired cross section of Beavercreek Road has already been installed on the High School side of the street and incorporates pedestrian and bicycle modes. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. This would be examined in detail at time of development application submittal.

Objective 7.1
Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.

Finding: the applicant has submitted a TIA that evaluates transportation impacts and mitigation approaches for the proposed zone change, assuming a reasonable development scenario under MUC-1 zoning. The applicant indicates that development plans will extend a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel. The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development.

Objective 7.2
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development offences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Finding: The applicant indicates that uses proposed for the property will be designed in a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. This will be reviewed at the time a specific development application is proposed for the property.

Goal 8 - Oregon City High School and Clackamas Community College
Promote connections and relationships with Oregon City High School and Clackamas Community College.

Finding: The applicant indicates that the intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development. A key component of the long-term transportation improvements needed to support the future development of the site and adjacent area is the connection of Meyers Road through the site to the east. To the west, continued development of the CCC campus and adjacent lands will trigger completion of the Meyers Road connection from High School Avenue to Highway 213 across the CCC campus. The MUC-1 zone and allowed uses and future development of the property will promote connections with Oregon City High School and Clackamas Community College. The Traffic Impact Analysis submitted for the proposed rezoning takes into account the transportation impacts associated with expansion of the Clackamas Community College and identifies the needed transportation facility improvements needed for mitigation for those impacts.

Objective 8.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the permitted uses of the MUC-1 zone include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city
and rural economy.

Objective 8.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Goal 9 - Unique Sense of Place
Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.
Finding: The applicant indicates that the MUC-1 zone with the many permitted uses will create a sense of place of mixed uses, scale of design and commitment to sustainability and allow compliance with the Goal unlike other zones.

Objective 9.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. The applicant will provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational

areas with the Beavercreek Road Concept area and to the communities beyond. This would be examined in detail at time of development application submittal.

Objective 9.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Finding: The applicant indicates that development of the property will provide an integrated street system that is designed as practicable to minimize the impacts to the environment sustainable design that provide
storm water quality and quantity control using best management practices. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Objective 9.3
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.4
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 9.5
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housingfor local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.6
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that could potentially provide goods, services and/or housing. This zone provides for an integration of housing and employment uses which will likely to occur on the subject property.

Objective 9.7

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

TITLE 1: REQUIREMENTS FOR HOUSING AND EMPLOYMENT ACCOMMODATION

3.07.110 Purpose and Intent
3.07.120 Housing and Employment Capacity
3.07.130 Design Type Boundaries Requirement
3.07.140 Measures to Increase Development Capacity
3.07.150 Transfer of Capacity
3.07.160 Local Plan Accommodation of Expected Growth Capacity for Housing and Employment—Performance Standard
3.07.170 Design Type Density Recommendations

TITLE 1: REQUIREMENTS FOR HOUSING AND EMPLOYMENT ACCOMMODATION

3.07.110 Purpose and Intent

One goal of the Framework Plan is the efficient use of land. Title 1 intends to use land within the UGB efficiently by increasing its capacity to accommodate housing and employment. Title 1 directs each city and county in the region to consider actions to increase its capacity and to take action if necessary to accommodate its share of regional growth as specified in this title.

Finding: Complies. The requested zoning is Mixed-Use Corridor (MUC-1) District. This district is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high-density residential, office, and small-scale retail uses are encouraged in this District. The application is consistent with an orderly and efficient transition from rural to urban land use. **The intent of this section is met.**

3.07.120 Housing and Employment Capacity

A. Each city and county shall determine its capacity for housing and employment in order to ensure that it provides and continues to provide at least the capacity for the city or county specified in Table 3.07-1, supplemented by capacity resulting from addition of territory to the UGB. Local governments shall use data provided by Metro unless the Metro Council or the Chief Operating Officer determines that data preferred by a city or county is more accurate.

B. A city or county shall determine its capacity for dwelling units by cumulating the minimum number of dwelling units authorized in each zoning district in which dwelling units are authorized. A city or county may use a higher number of dwellings than the minimum density for a zoning district if development in the five years prior to the determination has actually occurred at the higher number.

C. If a city annexes county territory, the city shall ensure that there is no net loss in regional housing or employment capacity, as shown on Table 3.07-1, as a result of amendments of comprehensive plan or land use regulations that apply to the annexed territory.

D. After completion of its initial determination of capacity, each city or county shall report changes in its capacity by April 15 of the first calendar year following completion of its initial determination and by April 15 of every following year.

Finding: Complies. This standard is directed at the City and has no application to this zone change request. However, in the event it applies, the standard is satisfied. The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. The property was designated by Metro as "Outer Neighborhood". With the requirement to complete a Concept Plan for adjacent employment lands to the east of the parcel, the parcel was included in the planning process for the Beavercreek Road Concept Plan, which was subsequently remanded. Oregon City was found to be in compliance Metro with the Housing and Employment Capacity standard in Metro's 2004 "Urban Growth Management Functional Plan Annual Compliance Report" which looks at whether the city has implemented changes in capacity reporting, design type mapping, minimum density standards, partitioning standards, accessory dwelling units, accessory dwelling units in centers, and complied with reporting requirements. Oregon City has provided yearly updates to Metro since the initial determination of capacity.

3.07.130 Design Type Boundaries Requirement

For each of the following 2040 Growth Concept design types, city and county comprehensive plans shall be amended to include the boundaries of each area, determined by the city or county consistent with the general locations shown on the 2040 Growth Concept Map or on maps adopted by ordinances adding territory to the UGB:

Central City--Downtown Portland is the Central City which serves as the major regional center, an employment and cultural center for the metropolitan area.

Regional Centers--Seven regional centers will become the focus of compact development, redevelopment and high-quality transit service and multimodal street networks.

Station Communities--Nodes of development centered approximately one-half mile around a light rail or high capacity transit station that feature a high-quality pedestrian environment.

Town Centers--Local retail and services will be provided in town centers with compact development and transit service.

Main Streets--Neighborhoods will be served by main streets with retail and service developments served by transit.

Corridors--Along good quality transit lines, corridors feature a high-quality pedestrian environment, convenient access to transit, and somewhat higher than current densities.

Employment Areas--Various types of employment and some residential development are encouraged in employment areas with limited commercial uses.

Industrial Areas--Industrial areas are set aside primarily for industrial activities with limited supporting uses.

Regionally Significant Industrial Areas--Industrial areas with site characteristics that are relatively rare in the region that render them especially suitable for industrial use.

Inner Neighborhoods--Residential areas accessible to jobs and neighborhood businesses with smaller lot sizes are inner neighborhoods.

Outer Neighborhoods--Residential neighborhoods farther away from large employment centers with larger lot sizes and lower densities are outer neighborhoods.

Finding: The property was designated by Metro as "Outer Neighborhood" on the 2040 Growth Concept design type map (Exhibit). When the city updated it's Comprehensive plan in 2004, the parcel was given the land use designation "Future Urban" so as to allow consistent planning for the vacant parcels east of Beavercreek Road. With the Metro requirement to complete a Concept Plan for the adjacent employment lands to the east of the parcel, the parcel was included in the planning process for the Beavercreek Road Concept Plan.

3.07.140 Measures to Increase Development Capacity

A. Each city and county shall adopt a minimum dwelling unit density, as prescribed in this subsection, for each zoning district in which dwelling units are authorized inside the UGB:

1. Any city or county minimum density standard deemed to comply with the Urban Growth Management Functional Plan pursuant to Section 3.07.810 prior to January 1, 2003, shall be deemed to comply with this subsection.

2. A city or county shall not approve a subdivision or development application that will result in a density below the minimum density for the zoning district.

3. A city or county may change the dwelling unit density of any zoning district so long as the zoning district continues to comply with this subsection and so long as the city or county continues to provide at least the overall capacity for housing for the city or county specified in Table 3.07-1

Finding: Complies. The city has already adopted zoning provisions in accordance with this policy. The MUC-1 zone allows for multi-family dwelling units in addition to commercial, office and retail use, and the city's most recent code revisions includes a requirement that residential developments undergoing Site Plan and Design Review shall achieve at least eighty percent of the maximum density of the base zone for the net developable area. The proposed re-zoning to MUC-1 is consistent with this policy.

B. A city or county shall not prohibit the partition or subdivision of a lot or parcel that is at least twice the size of the minimum size for new lots or parcels in any zoning district in which dwelling units are authorized.

Finding: Not applicable. The applicant has not proposed a partition or subdivision.

C. A city or county shall authorize the establishment of at least one accessory dwelling unit for each detached single-family dwelling unit in a zoning district and for each detached or attached single-family dwelling unit in a Regional Center or Station Community. The authorization may be subject to reasonable regulation for siting and design purposes.

Finding: Not applicable. The requested zoning does not permit single-family residential use.

D. In order to assist Metro to evaluate the effectiveness of Title 1 in aid of accomplishment of the 2040 Growth Concept, and to comply with state progress reporting requirements in ORS 197.301, by April 15 of each even-numbered year beginning 2004, each city and county shall report to Metro the actual density of new residential development per net developed acre authorized in those zoning districts that allow residential development in the preceding 24 months.

Finding: Complies. The city is in compliance with all reporting requirements to Metro.

3.07.150 Transfer of Capacity

A. A city or county may amend its comprehensive plan and land use regulations to transfer capacity for housing or employment shown on Table 3.07-1 to another city or county inside the UGB…

Finding: Not applicable. The city is not requesting to transfer capacity for housing or employment to another city or county inside the UGB.

3.07.160 Local Plan Accommodation of Expected Growth Capacity for Housing and Employment—Performance Standard

All cities and counties within Metro shall demonstrate that:

A. The provisions required in Section 3.07.140 of this title have been included in comprehensive plans and implementing ordinances; and

B. Using the computation method in Section 3.07.120, calculated capacities will achieve the target capacities for dwelling units and full-time and part-time jobs contained in Table 3.07-1; and

C. Effective measures have been taken to reasonably assure that the calculated capacities will be built for dwelling units and jobs; and

D. Expected development has been permitted at locations and densities likely to be achieved during the 20-year planning period by the

private market or assisted housing programs, once all new regulations are in effect.

Finding: Complies. Performance standards have been implemented as required by this section in order to meet the zoned capacity for housing (9,750 units) and employment units (8,298) required in Oregon City for the period 1994 to 2017. The proposed rezoning to MUC-1 on the subject property would augment theses measures.

3.07.170 Design Type Density Recommendations

A. For the area of each of the 2040 Growth Concept design types, the following average densities for housing and employment are recommended to cities and counties:

Central City - 250 persons per acre
Regional Centers - 60 persons per acre
Station Communities - 45 persons per acre
Town Centers - 40 persons per acre
Main Streets - 39 persons per acre
Corridor - 25 persons per acre
Employment Areas - 20 persons per acre
Industrial Areas - 9 employees per acre
Regionally Significant Industrial Area – 9 employees per acre
Inner Neighborhoods - 14 persons per acre
Outer Neighborhoods - 13 persons per acre

Finding: The subject property was annexed to Oregon City in 1979, prior to the Concept Planning requirement, and is designated "Outer Neighborhood", which has a density of 13 persons per acre, the lowest density recommended. At this time, Metro has not stated it's position with respect to whether the "Outer Neighborhood" designation should be maintained, however, Metro has indicated that the property was brought into the UGB prior to any Concept Planning requirements of Title 11, which would typically be when the design type recommendations would be applied. Should a development application be submitted for the property, further review of this recommendation will be required.

Table 3.07-1
Table 3.07-1 Zoned Capacity for Housing and Employment Units – Year 1994 to 2017 Section 3.07.120(A)(1)(b)

City or County	Dwelling Unit Capacity	Job Capacity
Beaverton	13, 635	21,368
Cornelius	1,285	3,054
Durham	243	522
Fairview	2,929	7,063
Forest Grove	3,054	5,943
Gladstone	880	1,569
Gresham[3]	20,020	27,679
Happy Valley[4]	5,705	1,418
Hillsboro[5]	16,106	59,566
Johnson City	38	82
King City[6]	461	470
Lake Oswego	4,049	13,268
Maywood Park	12	5
Milwaukie	3,188	3,650
Oregon City	**9,750**	**8,298**
Portland[3]	72,136	209,215
Rivergrove	20	0
Sherwood	5,216	9,518
Tigard	6,308	17,801
Troutdale	3,260	7,222
Tualatin[7]	4,054	12,301
West Linn	3,732	1,935
Wilsonville[2]	4,425	15,030
Wood Village	458	1,074
Clackamas County[1,3]	13,340	31,901
Multnomah County[8]	0	0
Washington County[1]	51,649	55,921
Regional Total	**246,053**	**516,873**

TITLE 7: HOUSING CHOICE

3.07.710 Intent
The Regional Framework Plan calls for establishment of voluntary affordable housing production goals to be adopted by local governments and assistance from local governments on reports on progress towards increasing the supply of affordable housing. It is the intent of Title 7 to implement these policies of the Regional Framework Plan.

3.07.720 Voluntary Affordable Housing Production Goals
Each city and county within the Metro region should adopt the Affordable Housing Production Goal indicated in Table 3.07-7, as amended over time, as a guide to measure progress toward increasing housing choices and meeting the affordable housing needs of households with incomes between 0% and 50% of the regional median family income

Finding: Inapplicable. This policy is directed to City action and does not apply to this quasi-judicial plan amendment request. The City uses the goals as guidelines for supporting the production of affordable housing. The proposed MUC-1 zone in this location would support the development of multi-family housing and condominiums, which would allow for the development of residential units that provide greater housing choices closer to needed amenities such as transit, retail and services.

3.07.730 Requirements for Comprehensive Plan and Implementing Ordinance Changes

Cities and counties within the Metro region shall ensure that their comprehensive plans and implementing ordinances:

A. Include strategies to ensure a diverse range of housing types within their jurisdictional boundaries.

B. Include in their plans actions and implementation measures designed to maintain the existing supply of affordable housing as well as increase the opportunities for new dispersed affordable housing within their boundaries.

C. Include plan policies, actions, and implementation measures aimed at increasing opportunities for households of all income levels to live within their individual jurisdictions in affordable housing.

Finding: Inapplicable. This standard is directed to the City. The City has adopted the above strategies, actions and implementation measures in its Comprehensive Plan. Additionally, recent code updates that have been adopted starting in 2008-through 2010 have added provisions to ensure a diverse range of housing types within Oregon City. These amendments include the removal of single-family housing as a permitted use in the R-2 zone, the addition of a new R-5 zone, cottage housing. The proposed MUC-1 zoning in this location would augment the development of a more diverse range of housing types than single-family residential zoning.

3.07.740 Inventory and Progress Reports on Housing Supply

A. Local governments shall assist Metro in the preparation of a biennial affordable housing inventory by fulfilling the reporting requirements in subsection 3.07.120D of Title 1 (Requirements for Housing and Employment Accommodation) and subsection B of this section.

B. Local governments shall report their progress on increasing the supply of affordable housing to Metro on a form provided by Metro, to be included as part of the biennial housing inventory described in subsection A. Local governments shall submit their first progress reports on July 31, 2007, and by April 15 every two years following that date. Local governments may report their progress as part of the capacity reports required by subsection 3.07.120D of Title 1 (Requirements for Housing and Employment Accommodation). Progress reports shall include, at least, the following information:

1. The number and types of units of affordable housing preserved and income groups served during the reporting period, as defined in Metro's form;
2. The number and types of units of affordable housing built and income groups served during the reporting period;
3. Affordable housing built and preserved in Centers and Corridors; and
4. City or county resources committed to the development of affordable housing, such as fee waivers and property tax exemptions.

3.07.750 Technical Assistance

Cities and counties are encouraged to take advantage of the programs of technical and financial assistance provided by Metro to help achieve the goal of increased production and preservation of housing choices and affordable housing and to help fulfill the monitoring and reporting requirements of this title.

Finding: Inapplicable. This is directed to the City. According to Metro's 2004 compliance report, the City has outstanding elements to be addressed regarding Metro's recommendations for affordable housing, these include the following items which should addressed at a city-wide, policy level:

1. Consideration of the voluntary affordable housing production goal. (Metro Code 3.07.720)
2. Consideration of the amendment of comprehensive plan and implementing ordinance with the following five land use strategies in Metro Code 3.07.730.B. (density bonus, replacement housing and local regulatory constraints).
3. Encouraged consideration of the implementation of four of the other affordable housing strategies in Metro Code Section 3.07.760 (replacement housing resulting from urban renewal areas, inclusionary housing in urban renewal areas, promotion of affordable housing for incomes 50% to 120% of the regional median household income, and joint coordination or action).
4. Specific third-year reporting requirements (Metro Code 3.07.740.C).

Approval of the proposed rezoning to MUC-1 for the subject property would not preclude attainment of these outstanding elements.

2001-2006 Affordable Housing Production Goals

Jurisdiction	*Needed new housing units for households earning less than 30% of median household income*	*Needed new housing units for households earning 30-50% of median household income*	*Total*
Beaverton	427	229	656
Cornelius	40	10	50
Durham	6	4	10
Fairview	42	31	73
Forest Grove	55	10	65
Gladstone	43	10	53
Gresham	454	102	556
Happy Valley	29	28	57
Hillsboro	302	211	513
Johnson City	0	0	0
King City	5	0	5
Lake Oswego	185	154	339
Maywood Park	0	0	0
Milwaukie	102	0	102
Oregon City	**123**	**35**	**158**
Portland	1,791	0	1,791
Rivergrove	1	1	2
Sherwood	67	56	123
Tigard	216	103	319
Troutdale	75	56	131
Tualatin	120	69	189
West Linn	98	71	169
Wilsonville	100	80	180
Wood Village	16	1	17
Clackamas County, Urban, Unincorporated	729	374	1,103
Multnomah County, Urban, Unincorporated*	81	53	134
Washington County, Urban Unincorporated	1,312	940	2,252
Total	6,419	2,628	9,047

#	Project Source (1)	Yr of Cost Estimate	Project Title (1)	Eligible Capacity Increasing % (2)	Serving Existing Deficiency	City Funding Responsibility (3)	Project Cost (1)	SDC Eligible Cost
R-73	2008 List	2008	South End Rd/High Street/S 2nd St	65.0%	35.0%	100.0%	1,367,604	888,943
R-75	2008 List	2008	Linn Ave/Davis Rd/Ethel St	86.0%	14.0%	100.0%	510,300	438,858
R-76	2008 List	2008	Leland Rd/Clairmont Way/Meyers Rd	67.9%	32.1%	100.0%	510,300	346,493
R-79	2008 List	2008	Spring Valley Dr: Partlow Rd to Salmonberry Dr	0.0%	100.0%	100.0%	N/A	-
R-80	2008 List	2008	Shenandoah Dr: Central Point to Pease Rd & Pease to Leland Rd	28.6%	71.4%	100.0%	N/A	-
R-83	2008 List	2008	South Douglas Loop (CCC) to Glen Oak Road	23.7%	76.3%	100.0%	3,120,000	739,518
R-84	2008 List	2008	Coquille Drive Extension	49.7%	50.3%	100.0%	5,200,000	2,586,347
R-86	2008 List	2008	Meyers Road to Caufield Road	65.8%	34.2%	100.0%	N/A	-
R-91	2008 List	2008	SE 82nd Drive crossing of Clackamas River	24.9%	75.1%	100.0%	N/A	-
R-92	2008 List	2008	Fir Street Extension: Highway 213 to Beavercreek Road	51.5%	48.5%	100.0%	18,750,000	9,660,883
R-93	2008 List	2008	Ethel St to May St (south of Holmes Lane)	44.5%	55.5%	100.0%	N/A	-
R-94	2008 List	2008	Laurel Lane Extension: May St to Warner Milne Rd	42.7%	57.3%	100.0%	N/A	-
R-95	2008 List	2008	Roosevelt St Extension: Molalla Ave to Linn Ave	45.6%	54.4%	100.0%	N/A	-
R-96	2008 List	2008	12th Street Extension: Taylor St to Grant St	40.3%	59.7%	100.0%	N/A	-
R-97	2008 List	2008	Skellenger Way to Meyers Road/Clairmont Way	40.4%	59.6%	100.0%	N/A	-
R-98	2008 List	2008	Meyers Road Extension: Highway 213 to High School Lane	54.2%	45.8%	100.0%	10,000,000	5,415,282
R-102	2008 List	2008	Parrish Road Extension	100.0%	0.0%	100.0%	4,000,000	4,000,000
R-104	2008 List	2008	Molalla Avenue/Taylor/Division	34.2%	65.8%	100.0%	1,000,000	341,998
R-106	2008 List	2008	Agnes Street: Main Street to Highway 213	61.4%	38.6%	100.0%	13,575,000	8,332,559
Total				**58.1%**	**41.9%**	**78.3%**	**$ 312,918,784**	**$ 158,455,615**
less: Beginning FY2007 Transportation SDC Fund Balance (4)								$ 1,614,627
Total Future Capital Projects for SDC Calculation								$ 156,840,988

NOTES

(1) 2008 List = Primary sources were the 2001 Transportation System Plan and the Beavercreek Road and Park Place Concept Plans. Original cost estimates in 2001 TSP were updated to 2008 dollars.

(2) Projects were allocated based on growth's share of total future peak-hour trips. When such data was unavailable, baseline projections of vehicle/capacity (V/C) ratios were utilized to determine existing system deficiencies.

(3) Minimum 10% City match for State project costs. The City anticipates potential City contribution of at least 30% and up to 40%.

(4) Source: FY2007 City budget.

OREGON CITY
Community Development – Planning
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

OREGON CITY PLANNING COMMISSION

Tally of Votes

Planning Commission Hearing Date: 8·30·10

Board Members Present	Staff Present
Stein	Terway (Butler)
Groener	Walter
Powell	Konkol
Lajoie	Kabeismann

Agenda Item: CP 10-02 + WQ 10-05

	Motion:	Second:	Aye:	Nay:	Abstain:	Comments:
Commissioner Stein	2		✓			
Commissioner Groener	1		✓			
Commissioner Lajoie			✓			
~~Commissioner Kidwell~~						
Chair Powell			✓			

Agenda Item: PZ 10-01 and ZC 10-01 recc. appvl w/ conditions

	Motion:	Second:	Aye:	Nay:	Abstain:	Comments:
Commissioner Stein			X			
Commissioner Groener		X	X			
Commissioner Lajoie	X		X			
~~Commissioner Kidwell~~						
Chair Powell			X			

4-0

Agenda Item: _____

	Motion:	Second:	Aye:	Nay:	Abstain:	Comments:
Commissioner Stein						
Commissioner Groener						
Commissioner Lajoie						
Commissioner Kidwell						
Chair Powell						

EXHIBITS ENTERED INTO THE RECORD AT A HEARING

Community Development Department, 221 Molalla Avenue, Suite 200, P.O. Box 3040, Oregon City, OR 97045, (503) 722.3789
www.orcity.org

Hearing Date: 8-30-10

File Number: PZ 10-01 + ZC10-01

Exhibit Number:	Description of Exhibit:	Submitted By:
1	LETTER FROM METRO	STAFF

EXHIBITS ENTERED INTO THE RECORD AT A HEARING

Community Development Department, 221 Molalla Avenue, Suite 200, P.O. Box 3040, Oregon City, OR 97045, (503) 722.3789
www.orcity.org

Hearing Date: 8.30.10

File Number: CP10-02 + WR 10-5

Exhibit Number:	Description of Exhibit:	Submitted By:
1	1999 Wetland Inventory	L. Butler
2	comments of Larry Potter	" "
3	Letter from Nancy Kraushaar	" "
4	Letter from Gail Curtis, ODOT	" "

Items to enter into the record at the August 30, 2010 PC Hearing:

1. 1999 Local Wetland Inventory and Riparian Assessment study by Shapiro and Associates
2. Comments from Larry Potter, Parks Operations Manager
3. Letter from Nancy Kraushaar, Public Works Director and City Engineer, dated August 30, 2010
4. Letter from Gail Curtis, Senior Planner at ODOT, dated August 30, 2010